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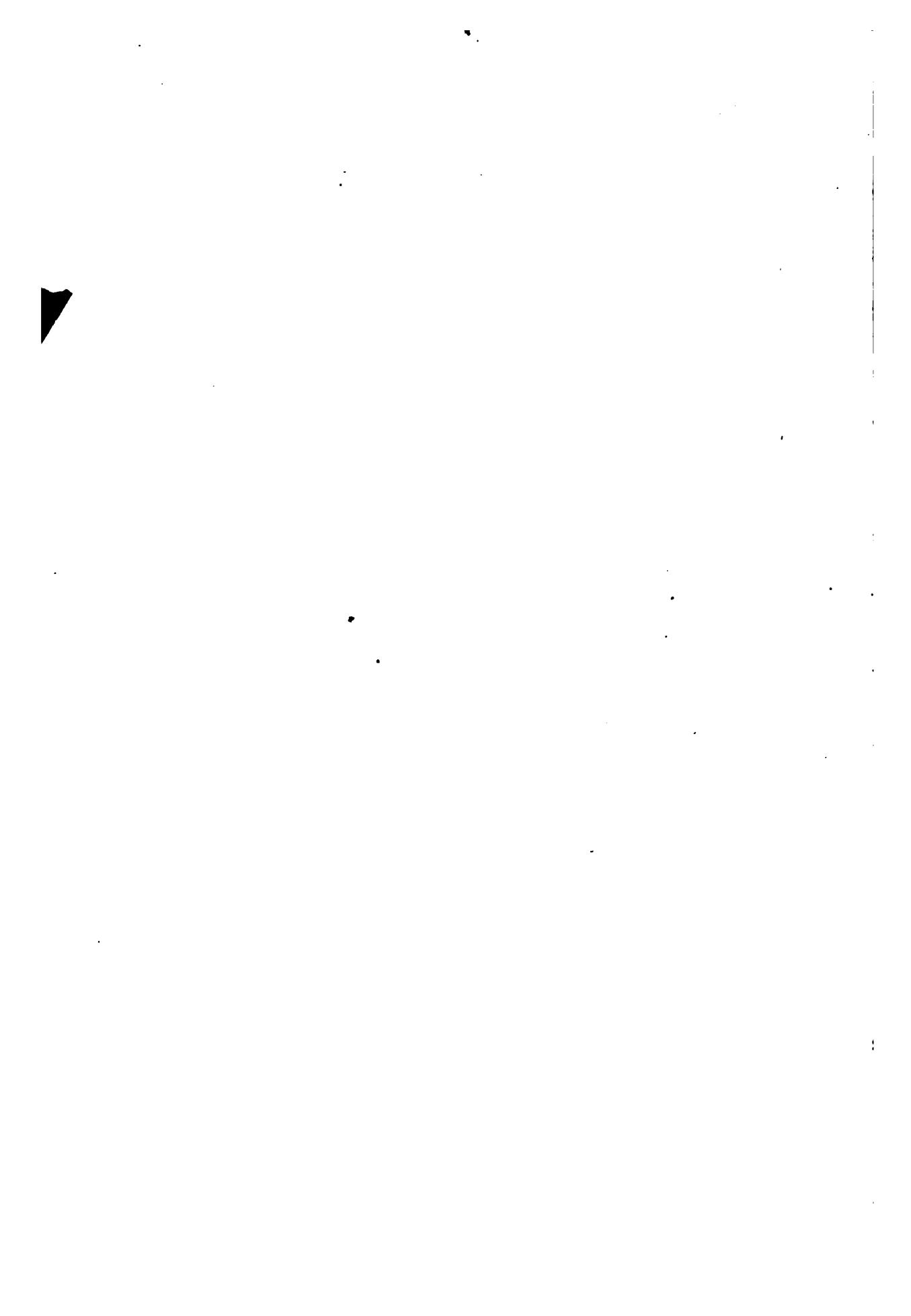
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THE
INDUSTRIAL ARTS INDEX

FIRST ANNUAL CUMULATION

SUBJECT INDEX TO A SELECTED LIST OF
ENGINEERING AND TRADE PERIODICALS
FOR 1913

EDITED BY

MARION E. POTTER AND LOUISE D. TEICH

THE H. W. WILSON COMPANY
WHITE PLAINS, N. Y. and NEW YORK CITY
1914

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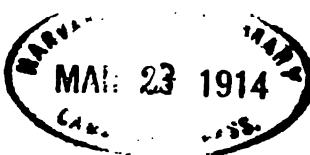
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With this issue the *Industrial Arts Index* completes its first volume. The removal of the publishers from Minneapolis to White Plains prevented the publication of a number in December. The present issue however, is a complete index for 1913 of the magazines listed on the following page. Numbers one and two of volume two will be published as a double number in April and the publishers hope to resume thereafter the regular schedule.

The four numbers thus far published have been in the nature of an experiment. The list of periodicals is still far from complete, and the method of indexing will no doubt need modification as the work is enlarged. Suggestions will be welcome both as to the list of magazines and the improvement of the indexing. *Ice and Refrigeration*, *The Proceedings of the American Society of Civil Engineers*, the *Electrical Journal*, and *American Machinist* do not appear on the list as the publishers have not yet sent us copies for indexing. The *Textile World Record*, *General Electrical Review*, *Journal of American Institute of Architects*, *American Gas Light Journal* have been chosen as the next additions, while the indexing of *Horseless Age* and *Electrical Review* and *Western Electrician* which was necessarily omitted from this volume, will be carried back to the beginning of 1913.

One of the difficulties of indexing engineering magazines is to indicate the fact that certain articles appear in more or less similar form in several different periodicals. As the titles of these articles usually vary, it takes a good deal of time to establish their identity or partial identity. This happens frequently in the case of reports or abstracts of papers presented before engineering or trade societies. The original paper may be published in one magazine, a portion of it in another, reasonably full abstracts in a third, and perhaps a brief summary in a fourth. An expression of opinion is very much desired as to the importance of indicating the relationship of these articles to one another. Should they be combined in one entry under one title,

with some abbreviation or symbol to show the relationship e. g. "Same cond." or "excerpts," or might they be entered separately each under its own title and the time thus saved be spent more profitably in improvements in other directions?

Miss Louise Teich has edited copy and read the final proof of this index. Credit is due also to Mrs. Nellie Shimer for valuable assistance.

The American Institute of Mining Engineers publishes an index to volumes 36 to 40 of its Transactions, covering the years 1905 to 1909. This index supplements the "General Alphabetical and Analytical Index" of volumes 1 to 35. A new arrangement of material under group headings is introduced.

The American Society for Testing Materials has published an index to the first twelve volumes of the Proceedings of the society. Volume 1 contains the index to the twenty-eight bulletins that were issued at irregular intervals from 1898 to 1902. Volume 2 contains the index to the annual volumes which have been issued since that date, including the volume for 1913. A table of contents giving the contents for each individual volume follows the index proper.

The "Index to Transactions of the American Institute of Electrical Engineers" in two volumes has been issued by that society. "This index consists of two separate parts, each intended for a distinct purpose. First. There is an index of papers in which they are classified in natural groups and arranged chronologically in each group. Second. There is an index to specific data and information arranged alphabetically. The index of papers is intended for searchers desiring to locate papers on a given subject, and to aid in this search the papers have been characterized. These characterizations are not intended to be abstracts of the papers, but rather to give the scope and nature of their contents. . . . The index to specific data and information is intended for searchers desiring to make a complete study of the subject as presented in the Transactions. There is a great mass of valuable information hidden in discussions which has no very direct connection with the subject of the paper. This data can be found only by reference to such a topical index." (Introduction) Volume 1 covers the period from 1884 to 1900 inclusive; volume 2, from 1901 to 1910 inclusive.

List of Periodicals Indexed

Am Eng—American Engineer. See *Ry Age* (Mech ed).

Am Ind—American Industries. \$1; single numbers 10c. National Manufacturers Co., 30 Church St, New York.

Am Inst E E Pro—American Institute of Electrical Engineers. Proceedings. \$10; single numbers \$1. F. L. Hutchinson, sec., 33 W. 39th St, New York.

Am Inst Min E Bul—American Institute of Mining Engineers. Bulletin, subs. \$10; to members, public libraries, and educational institutions, \$5. Joseph Struthers, sec., 29 W. 39th St, New York.

Am Mach—American Machinist. \$4; single * numbers 15c. Hill Pub. Co., 505 Pearl St, New York.

Am Soc M E J—Journal of the American Society of Mechanical Engineers. \$3; single numbers 35c. American Society of Mechanical Engineers, 29 W. 39th St, N. Y.

Arch & Bldg—Architecture and Building. \$2; single numbers 20c. William T. Comstock Co., 23 Warren St, New York.

Arch Rec—Architectural Record. \$3; single numbers 35c. Architectural Record Co., 119 W. 40th St, New York.

Automobile—Automobile. \$3; single numbers 20c. Class Journal Co., 231 W. 39th St, New York.

Brickb—Brickbuilder. \$5. Rogers & Manson, 85 † Water St, Boston.

Colliery—Colliery Engineer. \$2; single numbers 25c. International Textbook Co., Scranton, Pa. Formerly Mines and Minerals.

Concrete Cem—Concrete-Cement Age. \$1.50; single numbers 15c. Concrete-Cement Age Pub. Co., 97 West Fort St, Detroit, Mich.

Dom Eng—Domestic Engineering. \$2; single numbers 10c. Domestic Engineering Co., 445-447 Plymouth Court, Chicago.

Elec Ry J—Electric Railway Journal. \$3; single numbers 10c. McGraw Pub. Co., 239 W. 39th St, New York.

Elec R & W Elec'n—Electrical Review and * Western Electrician. \$3; single numbers 10c. Electrical Review Pub. Co., 608 S Dearborn St, Chicago.

Elec W—Electrical World. \$3; single numbers 10c. McGraw Pub. Co., 239 W. 39th St, New York.

Eng & Min J—Engineering and Mining Journal. \$5; single numbers 15c. Hill Pub. Co., 505 Pearl St, New York.

Eng M—Engineering Magazine. \$3; single numbers 25c. Engineering Magazine Co., 140 Nassau St, New York.

Eng N—Engineering News. \$5; single numbers 15c. Hill Pub. Co., 505 Pearl St, New York.

Eng Rec—Engineering Record. \$3; single numbers 10c. McGraw Pub. Co., 239 W. 39th St, New York.

Foundry—Foundry. \$1; single numbers 15c. The Foundry, Cleveland, O.

Heat & Ven—Heating and Ventilating Magazine. \$1; single numbers 10c. Heating & Ventilating Magazine Co., 1123 Broadway, New York.

Horseless Age—Horseless Age. \$2. Horseless Age Co., 250 W. 54th St, N. Y.

Ill U Eng Exp Sta Bul—Illinois University Engineering Experiment Station. Bulletin. Univ. of Ill., Urbana.

Ind Eng—Industrial Engineering and Engineering Digest. \$2; single numbers 20c. Technical Literature Co., 120 W. 32d St, New York.

Inland Ptr—Inland Printer. \$3; single numbers 30c. Inland Printer Co., 624 Sherman St, Chicago.

Int Marine Eng—International Marine Engineering. \$2. Aldrich Pub. Co., 17 Battery Place, New York.

Iron Age—Iron Age. \$5; single numbers 20c. David Williams Co., 239 W. 39th St, New York.

Iron Tr R—Iron Trade Review. \$4; single numbers 15c. Penton Pub. Co., Penton Bldg., Cleveland, O.

J Account—Journal of Accountancy. \$3; single numbers 30c. Ronald Press Co., Cooperstown, N. Y.

J Fr Inst—Journal of the Franklin Institute. \$5; single numbers 50c. Franklin Institute, Philadelphia.

J Ind & Eng Chem—Journal of Industrial and Engineering Chemistry. \$6. American Chemical Society, Easton, Pa.

Locomotive—Locomotive. 50c; single numbers gratis; recent bound volumes \$1. Hartford Steam Boiler Inspection & Insurance Co., Hartford, Conn.

Mach—Machinery. Engineering edition \$2; coated pa. \$2.50. Industrial Press, 140 Lafayette St, New York.

Met & Chem Eng—Metallurgical and Chemical Engineering. \$2; single numbers 25c. McGraw Pub. Co., 239 W. 39th St, New York.

Metal Ind n s—Metal Industry new series. \$1; single numbers 10c. Metal Industry, 99 John St, New York.

Mines & Min—Mines and Minerals. See Colliery.

Munic Eng—Municipal Engineering. \$3; single numbers 25c. Engineering Pub. Co., Indianapolis, Ind.

Power—Power. \$2; single numbers 5c. Hill Pub. Co., 505 Pearl St, New York.

Ry Age—Railway Age Gazette. \$5; single numbers 15c. Simmons-Boardman Pub. Co., Woolworth Bldg, New York.

Ry Age (Mech ed)—Railway Age Gazette, mechanical edition including the American Engineer. \$2; single numbers 20c. Simmons-Boardman Pub. Co., Woolworth Bldg, New York.

Ry & Eng R—Railway and Engineering Review. \$4; single numbers 15c. Railway Review, 1407 Ellsworth Bldg, Chicago.
Continued as Railway Review.

Sci Am—Scientific American. \$3; single numbers 10c. Munn & Co., 361 Broadway, New York.

Sci Am S—Scientific American Supplement. \$5; single numbers 10c. Munn & Co., 361 Broadway, New York.

Stevens Ind—Stevens Indicator. \$1.50; single numbers 50c. Stevens Institute of Technology, Hoboken, N. J.

U S Agric Bul—United States. Dept. of Agriculture. Bulletin. Distributed free of charge. U. S. Dept. of Agriculture, Division of Publications, Washington, D. C.

U S Bur Chem Bul—United States. Bureau of Chemistry. Bulletin. Distributed free of charge. U. S. Dept. of Agriculture, Division of Publications, Washington, D. C.
Included, after bulletin 166, in the Bulletins of the United States. Dept. of Agriculture.

U S Bur Mines Bul—United States. Bureau of Mines. Bulletin. Distributed free of charge. U. S. Bureau of Mines, Washington, D. C.

U S Bur Stand Bul—Bulletin of the United States Bureau of Standards. quarterly. \$1. Superintendent of Documents, Union Bldg, Washington, D. C.

U S Forest Serv Bul—United States. Forest Service. Bulletin. Distributed free of charge. U. S. Dept. of Agriculture, Division of Publications, Washington, D. C.
Included, after bulletin 127, in the Bulletins of the United States. Dept. of Agriculture.

U S Pub Road Bul—United States. Office of Public Roads. Bulletin. Distributed free of charge. U. S. Dept. of Agriculture, Division of Publications, Washington, D. C.
Included, after bulletin 48, in the Bulletins of the United States. Dept. of Agriculture.

* A few numbers only are indexed

† Periodicals elected but not yet indexed

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Ability tests

Are men better typists than women? scientific tests made by J. M. Lahy. J. Boyer. II Sci Am 109:316 O 25 '13
Mental tests to grade pupils at school. Sci Am S 75:37 F 8 '13
Psychological tests of motormen. Elec Ry J 42:66-7 Jl 12 '13
Scientific selection of workmen. Eng Rec 67:171 F 15 '13

See also Efficiency, Industrial

Abrasives

Carborundum and alundum: a comparison with emery. S. A. Cochell. Metal Ind n's 11:249-50 Je '13
See also Emery wheels; Grinding and polishing

Absecon Inlet

Channel- and beach-maintenance problem at Atlantic City. R. R. Raymond. map Eng N 70:150-4 Jl 24 '13
Proposed improvement of an ocean bar at Atlantic City, N. J. L. M. Haupt. Eng N 70: 523-4 S 11 '13

Absorption of light

Absorption of light in space. E: S. King. II Sci Am S 75:171 Mr 15 '13

Absorption spectra. See Spectra—Absorption spectra

Absorption system. See Refrigeration and refrigerating machinery

Absorption towers

Absorption and reaction towers for chemical factories. diags Met & Chem Eng 11:359-61 Je '13

Abu, Mount

Temples of Dilwara on Mount Abu. T. G. Dalal. II Sci Am S 76:200-1 S 27 '13

Abutments. See Bridges—Abutments

Acacias

Economic study of acacias. C: H. Shinn. II U S Agric Bul 9:1-38 '13

Academic efficiency. W: Kent. Stevens Ind 30: 20-36 Ja '13

Accelerometer

Detecting resistance—saving fuel. W. C. Marshall. II Automobile 28:833-5, 888-90, 937-9, 978-9 Ap 17-My 8 '13

Tester uses accelerometer on trucks. Automobile 29:200-3 Jl 31 '13

Accident law. See Negligence; Personal injuries; Workmen's compensation

Accident prevention. See Safety devices and measures

Accidents

Few miscellaneous accidents. Sci Am S 76: 407 D 27 '13

Prevention of elevator accidents. R. P. Bolton. Ind Eng 13:251-3 Je '13

See also Automobiles—Accidents; Aviation—Accidents; Building failures; Collisions at sea; Derailments; Life saving; Railroads—Accidents; Safety devices and measures; Shipwrecks; Street accidents; Street railroads—Accidents

Accidents, Industrial

Accident prevention. J. B. Douglas. II Sci Am S 76:223-4 O 11 '13

Accident prevention at Rochester, N. Y. II Am Ind 13:24-7 Ap '13

Accident prevention in construction work. Sci Am S 75:362-3 Je 7 '13

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Accidents in iron and steel mills: comparison for the United States and Germany. Iron Age 92:425 Ag 21 '13

Accidents on Catskill aqueduct. Eng Rec 67: 320 Mr 22 '13

Conservation of the worker. A. Cotter. II Eng M 45:489-505 Jl '13

Industrial accident costs in Massachusetts. Eng Rec 67:338-9 Mr 29 '13

Lessons of a power plant accident. H. S. Knowlton. Power 37:49-50 Ja 14 '13

Luck, law and industrial accidents discussed. W: H. Doolittle. Iron Tr R 52:921-2 Ap 17 '13; Same cond. Iron Age 91:945-6 Ap 17 '13

Metal-mining accidents; Catskill aqueduct accidents. Eng & Min J 95:1009-10 My 17 '13

Museums of safety and their activities: a brief history of movement for prevention of industrial accidents. M. S. Hutton. Mach 19:31-3 S '12

Ordinary precautions in construction work. Eng Rec 67:433-4 Ap 19 '13

Practical work in industrial advancement. Am Ind 13:12-5 Jl '13

Prevention of accidents in central stations. II Elec W 61:986-9 My 10 '13

Prevention of accidents in factories. II Sci Am S 76:212-4 O 4 '13

Prevention of disease versus cost of living. T: F. Harrington. Sci Am S 75:402-3 Je 28 '13

Recording memoranda on accident prevention. T: D. West. Am Ind 14:19-20 D '13

Relative vocational hazards. H. Davis. Colley 33:485-6 Ap '13

Safety engineering should form part of every engineering course. G. Gilmour. II Sci Am S 76:36-9 Jl 19 '13

Sanitation and safety in heavy-chemical production. F. D. Patterson. II Am Ind 13:28-31 Mr '13

Taking chances on a sewer trench. II Munio Eng 44:184-5 Mr '13

Three years of accident prevention: results of Eastman kodak co. II Iron Age 91:1068-61 My 1 '13

See also Boiler explosions; Building accidents; Coal mines and mining—Accidents; Derailments; Electricity, Injuries from; Foundries—Accidents; Mine accidents; Railroads—Accidents; Safety devices; Street railroads—Accidents; Workmen's compensation; Bureau of safety

Account analysis

Account analysis in commercial banks. H. C. Thompson. J Account 16:210-29 S '13

Accountants

Accounting charges. F: G: Colley. J Account 15:245-7 Ap '13

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Accountants, Public. Charlatanism in the profession of accountancy. C. V. Rowe. J Account 16:301-5 O '13

Co-operation between bankers and accountants. J Account 16:51-3 Jl '13

Federal relations: advancement and regulations of the profession. J: A. Cooper. J Account 16:1-9 Ja '13

Mission of the public accountant. F. B. Sears. J Account 16:291-300 O '13

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Municipal recognition of the certified public accountant in Cleveland. C. H. Nau. J Account 16:99-109 Ag '13
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Pennsylvania state board of examiners of public accountants. J Account 16:151-8 Ag '13

Law

C. P. A. legislation, Tennessee. J Account 15: 301-4 Ap '13
Certified public accountants in New York. J Account 15:53-6 Ja '13
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Spread and effect of accountancy legislation. J Account 15:444-8 Je '13
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Accounting

Accounting methods. Elec W 61:1235-8 Je 7 '13
Accounting of interest and discount on notes. J: Bauer. J Account 15:248-58 Ap '13
Accounting system for a municipal hospital. D. C. Eggleston. J Account 16:366-70 N '13
Accounting system for electric companies. L. W. Allison. Power 38:697-700 N 11 '13
Accounting system for small lighting companies. Elec W 62:380-1 Ag 23 '13
Apportionment of profits of building and loan associations. G: G. Scott. J Account 16: 350-7 N '13
Assessments on stock of corporations organized under the laws of California. J Account 15:117-21 F '13
Cotton mill accounts. J. Hunter. J Account 16: 110-9 Ag '13
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Depreciation reserves vs. depreciation funds. E. A. Sallers. J Account 16:358-65 N '13
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Distribution of accounts of road construction. Munic Eng 44:524-7 Je '13
Ford service system. Automobile 28:470-3 F 13 '13
Investigating an industry: accounting and sales departments. W: Kent. Ind Eng 15: 208-11 My '13
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Measuring efficiency on a profit basis. E: B. Passano. Iron Tr R 52:682-4 Mr 20 '13
Practical principles of rational management. A. H. Church. Eng M 45:166-73 My '13
Some essentials of public service accounting. A. F. Elkins. Elec Ry J 42:1276 D 20 '13
Supply jobbers' convention considers accounting. Elec W 62:1037-8 N 22 '13
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Uniform accounting systems. E. F. Gay. J Account 16:268-79 O '13

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Acetylene

Ability of the acetylene flame. E. M. Chance. Colliery 34:239-41 N '13

Acetylene lamps in coal mines. Colliery 34: 49-51 Ag '13

Acetylene lighting system defended. R. H. Coombs. Automobile 29:514-5 S 18 '13

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Acetylene-electric flame. C. F. Lorenz. II Elec W 61:511-5 Mr 8 '13

Acetylene for lighthouses, buoys, etc.

Marine lighting equipment of the Panama canal. J. Pattison. diag Eng N 69:1057-9 My 22 '13

Acid-proofing the floors of battery rooms. plan Met & Chem Eng 11:56 Ja '13

Acid waste

Disposal of acid waste in schools. J. Graham. diag Dom Eng 63:212-4 My 24 '13

Acidimetry

Benzolic acid as an acidimetric standard. G: W. Morey. U S Bur Stand Bul 8:648-50 Mr 1 '13

Acids

Manufacture of chemically pure acids; problems encountered. J. T. Baker. II Sci Am S 75:94-6 F 8 '13

See also Acidimetry; also names of acids, as Amic acids; Hydrochloric acid; Nitric acid; Sulphuric acid

Acorns

Acorns and their uses. II Sci Am 108:248 Mr 15 '13

Acoustics, Architectural

Air currents and their relation to the acoustical properties of auditoriums. F. R. Watson. Eng Rec 67:266-8 Mr 8 '13

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Adding machines. See Calculating machines

Adding typewriters

Frame work on an adding typewriter. R. Mawson. II Am Mach 38:847-50 My 22 '13

Adobe bricks

Strength of adobe brick. Eng & Min J 96:1074 D 6 '13

Advertising

Advertising for the printer. C: W. Hoyt. Inland Ptr 50:525-7 Ja '13

Advertising in printing trade. M. Gross. Inland Ptr 50:524-5 Ja '13

Advertising printing—a profitable field. E. R. Roeder. Inland Ptr 52: 381-2 D '13

Cost of advertising in country daily and weekly newspapers. E. K. Whiting. Inland Ptr 51:718-20 Ag '13

Higher advertising rates for country papers. Inland Ptr 51:557-9 Jl '13

How shall we make advertising effective? J: K. Allen. Dom Eng 64:341-2 S 20 '13

It pays to advertise. A. G. Brenton. Inland Ptr 50:843-5 Mr '13

Newspaper work. O. F. Byxbee. See monthly numbers of the Inland printer

Printers' advertising. W. H. Wright. Inland Ptr 51:838-40 S '13

Publicity for plumbers. Dom Eng 62:311-2 Mr 15 '13

Reaching the public through printing. W: T. O'Donnell. Inland Ptr 51:406-8 Je '13

Securing business by a house organ. C: W. Hoyt. Inland Ptr 51:682-4 Ag '13

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Sliding scale of advertising costs. J. C. Morrison. Inland *Ptr* 52:433-6 D '13
Study course in advertising. Inland *Ptr* 50: 694-5 F '13

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Advertising managers

Job with a curse. W. A. Olsen. Inland *Ptr* 51:685-7 Ag '13

Aeolian hall, New York city

Views. Arch & Bldg 46:25-9 Ja '13

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Report of the Aera advisory committee. Elec Ry *J* 42:827-8 O 16 '13

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Aviation to-day: importance of a national aerodynamic laboratory. W. I. Chambers. II *Sci Am S* 75:124-6 F 22 '13

Langley aerodynamical laboratory. C. H. Butman. *Sci Am* 108:538 Je 14 '13
National aerodynamic laboratory. *Sci Am* 108:26 Ja 11 '13

Need for an aerodynamic laboratory in the United States. W. I. Chambers. Eng M 44: 764-7 F '13

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Comparative efficiency of Eiffel surfaces: studies in aeroplane design. R. D. Andrews. *Sci Am S* 75:307 My 17 '13

Laws of similitude and their application in aeroplane design. L. Bairstow. II *Sci Am S* 76:109-10 Ag 16 '13

Reflections on aerial flight: fallacy of pendulum stabilizers. H. R. A. Mallock. *diag Sci Am S* 76:398-400 D 20 '13

Stream lines around obstacles to air currents. II *Sci Am S* 75:268-9 Ap 26 '13

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Aeronautic show at Olympia. S. Y. Beach. II *Sci Am S* 75:21-2 Ja 11 '13
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Aeronautics and aviation in 1912. *Sci Am* 108:30 Ja 11 '13

Aeronautics in Germany. *Sci Am S* 75:322-3 My 24 '13

Airhole of landing. E. Heinkel. Am Soc M E J 35:690-1 Ap '13

Airman and the weather: aeronautic meteorology. C. F. Talman. II *Sci Am* 109:94 Ag 2 '13

Direction of aerial highways. *Sci Am* 109:298 O 18 '13

Germany's aeronautical weather bureau. *Sci Am* 108:262 Mr 22 '13

Measurement of the true static pressure in a moving fluid—application to an aeroplane barograph. A. F. Zahm. J Fr Inst 175:503-9 My '13

Progress in air navigation. J. D. Holmes. *Sci Am* 109:211 S 13 '13

Recent aviation events. II *Sci Am* 109:229 S 20 '13

Reflections on aerial flight: fallacy of pendulum stabilizers. H. R. A. Mallock. *diag Sci Am S* 76:398-400 D 20 '13

Scientific instruments used in aeronautics: devices for determining direction, speed and side-slip of aeroplanes. H. Darwin. II *Eng M* 45:893-5 S '13

Stability in flying machines. A. A. Merrill. Am Soc M E J 35:1465-78 O '13

Traveling through inter-stellar space what type of motor would you employ? *Sci Am S* 75:263 Ap 26 '13

Way stations for a relay flight to Europe. H. H. Suplee. map *Sci Am* 109:496 D 27 '13

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Military supremacy of the air. T. M. R. von Kéler. *Sci Am* 108:6 Ja 4 '13

Military value of low flying. C. Dienstbach. *Sci Am* 109:210 S 13 '13

Mining the air with balloon torpedoes. H. Bannerman-Phillips. *Sci Am* 108:538 Je 14 '13

New hangars for military uses. II *Sci Am* 108:69-70 Ja 18 '13

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Requirements for scout type military aeroplane. *Sci Am S* 75:156 Mr 8 '13

Sea and air command: Germany's new policy in its relation to the British naval supremacy. II *Sci Am S* 75:392-5 Je 21 '13

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Work of aircraft in the French maneuvers, 1913. H. Bannerman-Phillips. II *map Sci Am* 109:322 O 25 '13

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Data from German aviation motor contest of interest to builders of automobile motors. Automobile 29:716-8, 776-8 O 16-23 '13

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Latest motors at the Paris aero show. II *Sci Am S* 76:21-2 Ja 11 '13

Progress in aeroplane design and aeronautical motors. Mach 19:753-4 Je '13

Simple formula for computing gyroscopic forces in an aeroplane. E. V. Huntington. *Sci Am S* 76:247 Ap 19 '13

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- Our record-breaking crop for 1912. *Sci Am* S 75:18-9 Ja 11 '13
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Bibliography

Bibliography of the literature on alcohol and alcoholometry. E. C. McElvay. U S Bur Stand Bul 9:436-74 Ap 15 '13

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Micrometry as applied to alloys. Met & Chem Eng 11:619-21 N '13

Misuse and failure of metals and alloys. T. V. Hughes. Sci Am 108:174 F 22 '13

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Action of the salts in alkali water and sea water upon cements; abstract of Technological paper no. 12. P. H. Bates and others. J Fr Inst 175:65-7 Ja '13; Same. Eng Rec 67:691-2 Je 21 '13; Same. Munic Eng 45:58-9 Jl '13; Same. Eng M 45:746-8 Ag '13; Same. Met & Chem Eng 11:442-3 Ag '13

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Action of various substances on cement mortars. R. K. Meade. Eng N 70:21-3 Jl 3 '13; Same. Eng Rec 68:20-1 Jl 5 '13

Blended or sand-cements; results of the study and experience of U. S. reclamation service. R. R. Coghlan. Eng N 69:1270-3 Je 19 '13

Bulk shipments of cement. G. Wilson. II Concrete Cem 2:27-8 Ja '13

Cement industry in the United States; effect of tariff. Eng Rec 67:59 Ja 18 '13

Cement industry prospered in 1912. Eng & Min J 95:214 Ja 25 '13

Cement instead of fire clay in hearth and bosh of Sheridan blast furnaces. Iron Age 91:429 F 13 '13

Cement manufacture. Am Soc M E J 35:257-78 F '13

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Economy of bulk cement. G. Wilson. Concrete Cem 2:243 My '13

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Growth of the cement industry on Pacific coast. Eng Rec 68:474 O 25 '13

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Handling cement in bulk. J. H. Libberton. II Eng Rec 68:68-4 Jl 19 '13

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Depreciation factor in the cost of producing Portland cement. F. H. Lewis. Am Soc M E J 35:257-61 F '13

Dust control in cement manufacture: Cottrell electrical precipitation processes. W. A. Schmidt. Eng M 46:121-3 O '13

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American soc. for testing materials: papers on cement and concrete. Eng N 70:40-2, 74 Jl 3-10 '13

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Analysis of black powder and dynamite. W. O. Snelling and C. G. Storm. II *U S Bur Mines Bul* 51:6-63 '13

Dynamite grade markings. F. H. Gunsolus. *Eng & Min J* 95:772-3 Ap 12 '13

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Notes on dynamite consumption. *Eng & Min J* 95:24 Ja 4 '13

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Dynamometers vs. road-testing. Automobile 28:948 My 1 '13

Milling machine dynamometer. R. Poliakoff. II *diag Mach* 20:106 N '13

Prony brake and its use. H. M. Phillips. *plan Power* 37:688-90 My 13 '13

Recording transmission dynamometer. D. D. Huyett. II *Power* 37:462 Ap 1 '13

Results of tests of Spiro turbines. H. Coward.

II *plan Power* 37:736-7 My 27 '13
Torsion-dynamometers and their field. *diag*
Automobile 29:428-9 S 4 '13

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Armature mmf relations in synchronous machines. J. H. Morecroft. *Elec W* 62:1106-8 N 29 '13

Care of the dynamo on board ship. V. White. *Int Marine Eng* 18:402-4 S '13

Cleveland electric illumination company's direct current generators. II *Iron Tr R* 52: 691-2 Mr 20 '13; *Power* 37:415 Mr 25 '13

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Discussion on operating characteristics of large turbo-generators (Field), and the transient reactions of alternators (Durgin and Whitehead). *Am Inst E E Pro* 32:99-110 Ja '13

Dynamo and motor characteristics. C. P. Poole. *Diags Power* 37:115-8 Ja 28 '13

Dynamo and motor troubles. R. L. Mossman. *plan Power* 37:526-8 Ap 15 '13

Dynamo-electric lighting for automobiles. A. E. Waller. *Am Inst E E Pro* 32:1972-85 N '13; Same. *Sci Am S* 76:394-5 D 20 '13

Effect of room temperature on temperature rise of motors and generators. M. W. Day and R. A. Beekman. *Am Inst E E Pro* 32:416-36 F '13

Experimental determination of the regulation of alternators. A. B. Field. *Am Inst E E Pro* 32:600-5 F '13

Fire hazard in turbo-generators. *Elec W* 62: 1200-1 D 13 '13

Fire hazard in turbo-generators. G. S. Lawler. *Am Soc M E J* 35:1093-7 Jl '13; Same cond. *Power* 38:890 D 23 '13

French generators for lighting of cars with novel means for equalizing voltage. *Diags* *Automobile* 29:668-70 O 9 '13

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Parallel operation of alternators with composite windings. R. L. Mossman. II *Elec W* 61:56-7 Ja 4 '13

Potential waves of alternating-current generators. W. J. Foster. *Am Inst E E Pro* 32:208-24 F '13

Regulation of definite pole alternators. S. H. Mortensen. *Am Inst E E Pro* 32:232-8 F '13

Trouble with three-wire generators in parallel. H. R. Mason. *diag Power* 38:331 S 2 '13

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Losses in turbo-alternators. B. G. Lamme. Power 37:118 Ja 28 '13

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Comparison of methods of making load tests on A-C. generators and on induction motors. E. F. Collins and W. E. Holcombe. Am Inst E E Pro 32:190-205 F '13

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Earthquakes in Japan. B. Lawson. II Sci Am S 76:100-1 Ag 16 '13

Is the Panama canal liable to damage by earthquakes? C. Davison. Sci Am 109:454 D 13 '13

New seismology. J. Milne. Sci Am S 76:151 S 6 '13

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 Reversing motors for machine tools. C: Fair. *Il Eng M* 45:119-20 Ap '13

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Civil service examination questions for New York state. *Eng N* 70:1131 D 4 '13
 Digest of current electrical literature. See weekly numbers of *Electrical world*

Don ts for electricians. H. M. Nichols. *Power* 38:820-1 D 9 '13

Electrical fallacies. A. H. Allen. *Power* 38:165-6 Jl 29 '13
 Examination questions in electrical engineering. *Eng N* 69:170 Ja 23 '13

Joint meeting of British and French electrical engineers at Paris, May, 1913. *Elec W* 61:1349-52 Je 21 '13
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N. E. L. A. papers and discussions at 36th annual convention, June, 1913. *Elec Ry* J 41: 1057-60 Je 14 '13
 N. E. L. A. 36th convention papers and discussions, Chicago, June, 1913. *Elec W* 61:1213-42 Je 7 '13

Pacific coast convention of the American Institute of electrical engineers, Vancouver, B. C., Sept., 1913. *Elec W* 62:629-30 S 27 '13

Papers and discussions at Canadian electrical assn., 23d annual convention, Toronto, 1913. *Elec W* 62:69-71 Jl 12 '13

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Reorganization of the Department of electricity, Chicago. *Elec W* 62:222-3 Ag 2 '13

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Retrospect of the year 1912. *Sci Am* 108:2 Ja 4 '13

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7th annual convention of the Association of iron and steel electrical engineers, New York city, Sept., 1913. *Elec W* 62:621-2, 682-3 S 27-O 4 '13

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Electric wiring and illumination of the Continental and commercial bank bldg., Chicago. II diag Elec W 62:189-94 Jl 26 '13

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Electrical equipment of industrial plants; illumination, motor requirements and telephone-call system of Continental motor mfg. co., Detroit, Mich. H. C. Spillman. II Elec W 61:1081-4 My 24 '13

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Provision for electrical equipment on steel motor cars. F. W. Butt. Am Soc M E J 35:838-40 My '13; Same. Ry & Eng R 53: 420 My 3 '13

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Application of the electric resistance furnace to determination of oxygen in iron and steel. R. H. McMillen. II Iron Age 91: 308-9 Ja 30 '13; Same. Met & Chem Eng 11:86-7 F '13

Comparison between electric and fuel furnaces. Met & Chem Eng 11:652 N '13

Crafts electric furnace of the induction type. C. H. Vom Baur. Iron Age 92:612-3 S 18 '13

Developments in electrochemistry. E. F. Roeber. Elec W 61:20-1 Ja 4 '13

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Electric brass furnace. C. Vickers. Foundry 41:27-8 Ja '13

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Electric furnace in production of iron from ore: discussion of present status and comparison of Scandinavian and Californian practices. D. A. Lyon. Met & Chem Eng 11: 15-9 Ja '13; Same. Sci Am S 75:381-3 Je 14 '13

Electric furnace in the steel foundry. E. P. Humbert. Iron Age 92:1414-5 D 18 '13

Electric furnace methods of steel production. J. B. C. Kershaw. II Iron Tr R 52: 197-203, 361-3 Ja 16, F 6 '13

Electric furnace of Crucible steel casting co., Milwaukee. II Iron Tr R 52:1399-1400 Je 19 '13

Electric furnaces in iron and brass foundries. E. K. Scott. Foundry 41:279-81 S '13

Electric furnaces; their design, characteristics and commercial application. W. M. Johnson and G. N. Sieger. Met & Chem Eng 11:504-7, 563-7, 643-8, 683-6 S-D '13

Electric production of steel: from the early experiments of Siemens to the thirty-ton furnace of to-day. II Sci Am 109:88-9 Ag 2 '13

Electric refining furnace for cast steel. Foundry 41:94-5 Mr '13

Electric smelting of iron ore in California. II Iron Age 92:124-6 Jl 17 '13

Electric steel furnace in foundry practice. Mach 19:61 Ap '13

Electric steel industry's present status: number and character of electric steel furnaces in the United States compared with those in other countries. Iron Age 92:81 Jl 10 '13

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Electrode holder construction for electric furnaces. II diag Met & Chem Eng 11:321-6 Je 13

Electrodes for electric furnaces: proper design and manufacture. G. B. Barham. Sci Am S 76:55 Jl 26 '13

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Manufacture of carbon disulphide. E: R. Taylor. II Sci Am S 75:410 Je 28 '13

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Hydraulic transmission on ships: the Föttinger transmitter. II Eng M 46:108-12 O '13

Marine uses of electric storage batteries. E. L. Reynolds. Int Marine Eng 18:157 Ap '13

Tests on a 10,000 horse-power Föttinger transformer: hydraulic gear for marine turbines. A. Gradenwitz. II Sci Am 108:536 Je 14 '13

Electricity on the farm

Agriculture, electricity and irrigation: electrically driven pump. P. A. Bates. II Sci Am 108:472 My 24 '13

Central station power for farmers. D. R. Palmquist. II Sci Am 109:405 N 29 '13

Electricity on the farm—Continued.
 Discussion on electricity on the farm (Bates). Am Inst E E Pro 32:89-98 Ja '13
 Electrical farming near Dayton, Ohio. Elec W 61:176-7 Ja 25 '13
 Electricity on farm of W. W. Mills near Marietta, Ohio. II Elec W 61:210-1 Ja 25 '13
 Electricity on the farm. Elec W 61:1226-8 Je 7 '13
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Electrification of benzene by friction. Sci Am S 75:199 Mr 29 '13

Electrification of railroads. See Railroads—Electrification

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Electrochemistry.
 Developments in electrochemistry. E. F. Röber. Elec W 61:20-1 Ja 4 '13
 Digest of electrochemical U. S. patents. See monthly numbers of Metallurgical and chemical engineering
 Electricity and chemical action. H. C. Jones. Sci Am S 75:174-6 Mr 15 '13
 Electrochemistry and batteries in 1912. Elec R & W Elec'n 62:11-2 Ja 4 '13
 23d general meeting of American electrochemical society, Atlantic City, April, 1913. Elec W 61:763-5 Ap 12 '13
 24th general meeting of the American electrochemical society at Denver, Colo., Sept., 1913. Elec W 62:573-4 S 20 '13
 24th general meeting of the American electrochemical society at Denver, Colo., Sept., 1913. Eng & Min J 96:551-2 S 20 '13
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Electrode holders.
 Electrode holder construction for electric furnaces. II diags Met & Chem Eng 11:321-6 Je '13

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 Carbon and impregnated electrodes for arc lamps. A. T. Baldwin. Elec W 62:793-7 O 18 '13
 Carbon electrodes for electrolytic cells. J. Härdén. Met & Chem Eng 11:242-4 My '13
 Electrode reactions. Met & Chem Eng 11:283-4 My '13
 Electrodes for electric furnaces: proper design and manufacture. G. B. Barham. Sci Am S 76:55 Jl 26 '13
 Experiments with furnace electrodes. II Met & Chem Eng 11:279-81 My '13

Electrodynamometer.
 Tubular electrodynamometer for heavy currents. P. G. Agnew. diag U S Bur Stand Bul 8:651-8 Mr 1 '13

Electro-galvanizing.
 Electro-galvanizing process. S. W. Rowsbar. Foundry 41:437-40 O '13

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Electrohorticulture.
 Electrical stimulation of plant growth. Sci Am 108:520 Je 7 '13
 Experiments in electroculture near Dayton, Ohio. H. G. Dorsey. Elec W 62:1217-8 D 13 '13

Electrolysis.
 Electro-analysis of the copper alloys. J. G. Fairchild. II Met & Chem Eng 11:380-2 Jl '13
 Electrolysis of aqueous solutions of the simple alkaline cyanides. Met & Chem Eng 11: 577 O '13
 Electrolysis of cyanide solution. Met & Chem Eng 11:575-7 O '13
 Electrolysis of low grade gold bullion. T. W. Bouchelle. Eng & Min J 95:238-40 Ja 25 '13
 Electrolytic production of oxygen. Sci Am 109:363 N 8 '13
 Production of caustic alkali and bleach. D. J. Allmand. II Sci Am S 76:22-3 Jl 12 '13
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Electrolysis committee.
 Meeting, New York, May 27, 1913. Elec Ry J 41:1025 Je 7 '13

Electrolytic corrosion.
 Electrolysis in reinforced concrete. E. B. Ross, B. McCollum and O. S. Peters. Eng M 44:951-3 Mr '13
 Electrolytic corrosion of earthed metallic conductors. Elec Ry J 42:818-20 O 16 '13
 Electrolytic corrosion of iron in soils. Elec Ry J 42:422 S 13 '13
 Electrolytic corrosion of iron in soils. Eng Rec 68:34-5 Jl 12 '13
 Electrolytic corrosion of iron in soils. B. McCollum and K. H. Logan. Am Inst E E Pro 32:1516-75 Jl '13
 Errors in the interpretation of tests for electrolysis. C. Hering. Elec Ry J 42:1135-6 N 29 '13
 Report of committee on Am. railway engineering assn. on electrolysis. Ry Age 54:708-10 Mr 21 '13

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Electromagnets.
 Dynamo and motor field magnets. C. P. Poole. II Power 37:185-6 F 11 '13
 Primer of electricity. C. P. Poole. II Power 37:373-5 Mr 18 '13
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Electrometallurgy.
 Advantages of small high speed electric furnaces. C. Hering. plan Met & Chem Eng 11:183-7 Ap '13
 Electric steel for small castings. F. T. Snyder. Iron Age 92:932 O 23 '13; Same. Foundry 41:468-9 N '13
 Electrodeposition of zinc. Eng & Min J 96: 502 S 13 '13
 Electrolytic production of iron sheets and tubes. etc. K. W. Palmér and J. A. Brinell. Met & Chem Eng 11:197-203 Ap '13
 Electrolytic refinery in Wall street. II Met & Chem Eng 11:594-5 O '13
 Electrolytic refining of copper precipitate anodes. W. F. Burns. Am Inst Min E Bul 79:1163-7 Jl '13
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 Electro-metallurgy in Scandinavia. Eng & Min J 95:1203-5 Je 14 '13
 Great Falls electrolytic copper refinery. H. A. B. Motherwell. Met & Chem Eng 11:669-70 D '13
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 Recent Cottrell electric precipitation results. L. Bradley. Eng & Min J 96:247-8 Ag 9 '13
 Recent progress in electrolytic process for zinc. Met & Chem Eng 11:43-4 Ja '13
 World's output of electric steel. Iron Age 91: 304 Ja 30 '13
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Electrons.
 Electron theory of magnetism. Elec W 61: 434 Mr 1 '13
 Emission of electrons from tungsten at high temperatures. O. W. Richardson. Sci Am S 76:102-3 Ag 16 '13
 Theory of mercury-vapor apparatus: the action of the Cooper Hewitt lamp construed on the basis of the electron theory. P. H. Thomas. Sci Am S 75:338-9 My 31 '13
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Electrophysics

Electrification of benzene by friction. *Sci Am S* 75:199 Mr 29 '13

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Electrophysiology

Electrical properties of egg-white. E. F. Northrup. *J Fr Inst* 175:413-9 Ap '13

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Application of chemistry in the plating room. E. P. later. *Foundry* 41:101-3, 145-8, 187-9, 243-5, 331-3, 362-4 Mr-Je, Ag-S '13

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Cobalt depositing bath. *Foundry* 41:440-1 O '13

Compilation of electro-plating hints. S. W. Rowsbar. *Foundry* 41:545-6 D '13

Copper and nickel-plating equipment at the works of the Underwood typewriter. J. Stedman. *Il Iron Age* 92:651-3 S 25 '13

Efficiency and economy in the plating room. H. E. Willmore. *Il Metal Ind n s* 11:19-21 Ja '13

Electric cleaning of metals. W: Voss. *Metal Ind n s* 11:510 D '13

Electro copper plating of galvanized iron chain. C: H. Proctor. *Metal Ind n s* 11:84 F '13

Electrodeposition of brass and bronze. C. W. Bennett. *Metal Ind n s* 11:170-3 Ap '13

Electro-deposition of copper, brass, bronze, etc. E. Blasnett, Jr. *Metal Ind n s* 11:220-1 My '13

Electrodeposition of nickel. O. P. Watts. *Metal Ind n s* 11:261-2, 293-4, 334-6, 380-1 Je-S '13

Electroplating costs by the square foot. *Foundry* 41:158-9 Ap '13

Equipment and management of cleaning baths. S. W. Rowsbar. *Foundry* 41:190-2 My '13

Factors influencing the nature of electrolytic deposits. O. P. Watts. *Il Metal Ind n s* 11:32-3, 83-4 Ja-F '13

Plating as a science. H. L. Haas. *Metal Ind n s* 11:433 O '13

Pure copper anodes. *Foundry* 41:441 O '13

Relation of chemistry to electro-plating. C: F: Burgess. *Metal Ind n s* 11:28-9, 78 Ja-F '13

Replating of flat ware. E. Blasnett, Jr. *Metal Ind n s* 11:331-2 Ag '13

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Symposium on electroplating. *Met & Chem Eng* 11:234-6 My '13

Three wire system for a plating room. C. G. Backus. *plan Metal Ind n s* 11:165-6 Ap '13

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Electric elevator questions and answers. A. C. Waldron. Power 37:668-9 My 13 '13

Electric elevator questions and answers. W. H. Pyatt. Power 37:832 Je 10 '13

Elevator as a central-station load. R. W. Charles. *Elec W* 62:1017 N 15 '13

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New York's power and the right of eminent domain. C. Herschel. *Eng Rec* 68:704-5 D 20 '13

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Efficiency management in gas tractor plant of the Hart-Parr co. *Il diag plan Iron Tr R 52:49-60 Ja 2 '13*

Efficiency methods used by Auto-Lite co. *plan Automobile 29:698-9 O 16 '13*

Factor in ice-plant efficiency. P: Neff. Power 33:270 Ag 19 '13

Factory organization and administration. W. L. Saunders. *Eng M 46:257-60 N '13*

Factory record and tracing system. H. I. Arnold. *Il Am Mach 38:851-4 My 22 '13*

Heat and power in manufacturing processes. S. H. Bunnell. *Iron Age 91:378 F 6 '13*

Increasing the efficiency of a brass manufacturing plant. P. W. Blair. *Il Metal Ind n's 11:18-4 Ja '13*

Inspection of materials and finished product. E. F. Roberts. *Ind Eng 13:418-21 O '13*

Same. *Iron Age 92:158-60 Jl 17 '13*

Keeping track of the work in the shop by the bulletin board and route sheet. *Il Ind Eng 13:453-8 N '13*

Klaxon factory system seen in detail. *Automobile 28:1066-9 My 22 '13*

Leak for factory profits: how money is lost in counting. *Ind Eng 13:458-60 N '13*

Management of small versus large plants. S. Dean. *Iron Age 91:1377 Je 5 '13*

New development in factory study; use of the Route model as a method of investigation. *Il Ind Eng 18:58-61 F '13*

Organization of large commercial and industrial establishments. B. Orenstein. *Eng M 44:588-96 Ja '13*

Practical principles of rational management. A. H. Church. *Eng M 44:487-94, 673-80, 894-903; 45: 24-33, 166-73, 405-11 Ja-Je '13*

Progress charts as a means of securing prompt delivery of goods. *Ind Eng 13:485-6 N '13*

Records for the works publication bureau. A. D. Williams. *Iron Age 91:1066-9 My 1 '13*

Relation of detailed planning and the cost of production. C. A. Harrington. *Eng M 45:353-8 Je '13*

Storeroom system for a large plant. *Ind Eng 13:342-6 Ag '13*

Using the suggestion box successfully. *Iron Age 92:820 O 9 '13*

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Drinking water in industrial plants. J: Sebroff. *Ind Eng 13:261-3, 338-41 Je, Ag '13*

Example of factory sanitation in New York. *Il Dom Eng 64:66-7 Jl 19 '13*

Factory hygiene. J. D. Hackett. *Ind Eng 13:427 N '13*

Human element in industry. W. Talbot. *Iron Age 91:366-9, 418-20 F 6-13 '13*

Rules for dust collection and shop ventilation. *Ind Eng 13:390 S '13*

Shop hygiene. W. Talbot. *Eng M 45:94-7 Ap '13*

Successful factory drinking water system. W. J. Bitterlick. *plan Ind Eng 13: 288-9 S '13*

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Fairbanks, Alaska

- Labor conditions at Fairbanks, Alaska. H. I. Ellis. Eng & Min J 96:1111-2 D 13 '13
- Placer situation at Fairbanks. Eng & Min J 96:1167-8 D 20 '13

Falling bodies

- Air resistance to falling bodies. A. A. Somerville. II Sci Am 108:429 My 10 '13

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- Chinese famine and proposed flood prevention. C: D. Jameson. II map Eng N 70:588-93 S 25 '13

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- Testing electric fans. Elec W 61:1019 My 17 '13
- Testing electric fans. H. B. Brooks. Elec W 61:1039 My 17 '13
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- Air measurement by Pitot tubes: abstract of paper read before Am. Soc. M. E., 1912. C. H. Treat. plans Eng N 69:204-9 Ja 30 '13
- Booster fans. II Colliery 33:454-5 Mr '13
- Equivalent opening of a ventilating system and the characteristic curves of a fan. M. Kloss. Am Soc M. E. J. 35:692-4 Ap '13
- facts and theories relating to fans. D: M. Mowat. plan Colliery 33:429-39 Mr '13
- Mine ventilating fans. Ind Eng 18:129 Mr '13
- Running centrifugal fans in parallel. L. B. Lent. diag Power 38:851-2 D 16 '13
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- Stine fan fitted with Hyatt roller bearings. II Colliery 33:527-8 Ap '13
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- Fargo declares a municipal dividend. W: D. Sweet. Munic Eng 44:121-2 F '13

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- Concrete on a Kansas farm. C: Dillon. II Concrete Cem 3:183-4 O '13
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 - Conference on marketing and farm credits. Ry & Eng R 53:341 Ap 12 '13

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- Fatigue and efficiency. Ind Eng 13:435-6 O '13
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- Crystallization of steel through fatigue. F. Rogers. Iron Age 92:554-5 S 11 '13
- Fatigue testing machine at Sibley college. G. B. Upton. II diag Sci Am S 76:372-3 D 13 '13

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- New York times account of recent meeting. Eng & Min J 96:890-1 N 8 '13

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- Effect of air in feed water. R. Carpenter. Power 38:331 D 30 '13
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- Feed-water treatment. (Engineers' study course) Power 38:580-1, 616-7, 656-7, 694-6 O 21-N 11 '13
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- Mining and treatment of feldspar and kaolin. A. S. Watts. II map U S Bur Mines Bul 53:1-164 '13

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- Pertinent facts regarding felt polishing wheels. F. Dolge. Metal Ind n s 11:86 F '13

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- Relative advantages of the different kinds of fence posts. Ry Age 54:627-9 Mr 20 '13

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- Concrete fence posts. H. P. Taylor. Concrete Cem 1:92 D '12
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- Steel and concrete fence posts. Eng N 69: 856 Ap 24 '13

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 Cyanamid in agriculture. E. J. Pranke. Eng M 45:432-4 Je '13
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American electric railway engineering association: report of committee on insurance. *Elec Ry J* 42:803-4 O 16 '13

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Auxiliary water supply for the fire protection of San Francisco. A. J. Cleary. plans *Eng Rec* 68:107-10 Jl 26 '13

Debarment of city conflagrations. A. Blauvelt. *Am Soc M E J* 35:947-60 Je '13

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. Order of the Board of railway commissioners for Canada, describing regulations to be adopted by railway companies for the prevention of fires. *Ry Age* 54:711-3 Mr 21 '13

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Railway fire protection association formed at Chicago, Oct., 1913. *Ry Age* 55:705-8 O 17 '13

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How the Fulton-Tosi oil engine is constructed. *Il diag Iron Tr R* 53:1141-2 D 25 '13.

Illmer two-stroke-cycle gas engine. *Il plan Power* 37:743-5 My 27 '13.

Improvements in gas engine design. G. M. Strombeck. *Mach* 19:39-40 S '12.

Increase of output of internal-combustion engines and a new six-stroke cycle engine. E. Schimanek. *diag Am Soc M E J* 35:701-4 Ap '13.

Industrial locomotive driven by a crude oil engine. *Il Eng N* 69:64-5 Ja 9 '13.

Internal combustion engine using coal fuel invented by A. M. Low. *plan Ind Eng* 18: 31 Ja '13.

Jacket water requirements of internal combustion engines. R. Trautschold. *Power* 37: 494-5 Ap 8 '13.

James internal combustion engine. *Il Sci Am* 108:456 My 17 '13.

Junkers engine. F. E. Junge. *Il Power* 37: 120-1, 417-8 Ja 28 Mr 25 '13.

Junkers vs. Diesel engine. A. M. Levin. *Power* 37:671-2 My 13 '13.

Knock in gas engine. A. M. Leonard; R. H. Danforth. *Power* 37:350-1 Mr 11 '13.

Location of gasoline engine troubles made easy. *Il Sci Am* 108:34-5 Ja 11 '13.

Low coal engine. *Il Power* 37:86 Ja 21 '13.

Low's gasoline motors à la Diesel. *plans Automobile* 28:622-3 Mr 13 '13.

Lubrication of gas engine cylinders. A. L. Brennan, Jr. *Power* 37:119-20 Ja 28 '13.

Lubrication of gas engine cylinders. L. L. Brewster. *Power* 37:341 Mr 11 '13.

Machining the Keystone gasoline engine parts. F. B. Jacobs. *Il Mach* 19:350-1 Ja '13.

Marine oil engine. T. Lucas. *plans Int Marine Eng* 18:56-9 F '13; Same cond. *Eng M* 45:114-7 Ap '13.

New Diesel engine. *Sci Am S* 75:271 Ap 26 '13.

New kerosene vaporizer demonstrated. *Sci Am* 109:125 Ag 16 '13.

New large gas-engine: valveless, two-cycle, vertical engine. A. E. L. Chorlton. *Il Eng M* 44:606-9 Ja '13.

New type of gasoline engine. *Il Eng Rec* 67: sup 41 F 15 '13.

Oil-engine characteristics. *Elec W* 61:77-8 Ja 11 '13.

Oil engine in railway water service. C. R. Knowles. *Ry Age* 55:289-90 Ag 15 '13.

Oil engines for driving electric generators. *Ind Eng* 13:29-30 Ja '13.

Oil-motor industry in Italy. *diags Power* 38:504-6 O 7 '13.

Oil-motor power at Leipzig building exposition. A. Gradenwitz. *Il Power* 38:396 S 16 '13.

Operating costs of small gas engine plant. M. W. Utz. *Il Power* 37:24 F 18 '13.

Paragon engine. *plan Power* 37:225-6 F 18 '13.

Performance of engine operating on coke-oven gas. *Il Power* 37:633-4 My 6 '13.

Possibilities of the marine oil engine. J. F. Wentworth. *Int Marine Eng* 18:129-30 Mr '13.

Practical operation of gas engines using blast-furnace gas as fuel. C. C. Sampson. *diags Am Soc M E J* 35:767-83 My '13; Same. *Iron Age* 91:1120-3 My 8 '13; Same. *Iron Tr R* 52:1120-4 My 15 '13; Same. *Sci Am S* 76:185-7 S 20 '13; Same cond. *Power* 37:821-3 Je 10 '13; Discussion. F. H. Wagner. *Am Soc M E J* 35:1276-9 Ag '13.

Preheated air. J. Barraja-Frauenfelder. *Int Marine Eng* 18:173 Ap '13.

Pressures in gasoline engines. G. A. Field. *Power* 38:56 JI 8 '13.

Principles of fuel oil engines. C. F. Hirshfeld. *Il Sci Am S* 76:46-7, 61-4, 74-5 JI 19 '13.

Recent development of gas power in Europe. H. J. Freyn. *Eng N* 69:228-30 Ja 30 '13; Same. *Am Soc M E J* 35:237-49 F '13.

Recovery of heat lost in explosion engines. G. Dehesson. *Am Soc M E J* 35:1689-91 N '13.

Removing carbon deposit with oxygen. *Il Sci Am* 109:125 Ag 16 '13.

Removing carbon from gas engines with denatured alcohol. J. A. Angiada. *Iron Age* 92:616-7 S 18 '13.

Saving in power cost with a gas engine. F. R. Lufkin. *Power* 38:93 JI 15 '13.

Silencer for gas engines. *Il Sci Am* 108:544 Je 14 '13.

Small internal combustion engines on land and water. *Sci Am* 108:304 Ap 5 '13.

Snow high-compression oil engine. A. E. Ballin. *Il Power* 38:229-30 Ag 12 '13.

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Status of the large gas engine in Europe. P. Langer. *diags Iron Age* 92:1332-5 D 11 '13; Same cond. *Power* 38:891-3 D 23 '13.

Trials of a 100 brake horse-power oil engine: Junkers marine engine. *Il Sci Am S* 76: 348-9 N 29 '13.

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Fuel economics of the oil engine. J. A. Secor. *Iron Age* 91:974-6 Ap 17 '13.

Fuel for oil engines: qualities required. *Sci Am S* 76:411 Ja 28 '13.

Fuels for heavy-oil engines. I. C. Allen. *Eng M* 45:886-8 S '13.

Heating fuel oil. B. F. Hartley. *plan Power* 37:60 Ja 14 '13.

Heavy oil as fuel for internal-combustion engines. I. C. Allen. *Ind Eng* 13:392-5 S '13; Same. *Sci Am S* 76:326-7 N 22 '13.

Power from kerosene: using oil, kerosene and distillates in the ordinary gas engine. L. W. Ellis and W. R. Dray. *Il Sci Am S* 75: 106-6 F 15 '13; Excerpts. *Sci Am* 108:246-7 Mr 15 '13.

Waning supply of gasoline. J. A. Secor. *Sci Am S* 75:271-2 Ap 26 '13.

Will the automobile be driven by kerosene? H. A. Morris. *Il Sci Am* 108:38 Ja 11 '13.

Working fluid of internal-combustion engines. D. Clerk. *Ind Eng* 18:405-8 S '13.

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Hartland, Vt.—hydroelectric plant for sawmill use. M. A. Hicks. II Elec W 61:1037-9 My 17 '13

Windsor, Vt.—central station practice. II Elec W 62:1153-9 D 6 '13

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Appalachian hydro-electric development, New River, Va. W. O. Rogers. II plan Power 37: 402-8 Mr 25 '13

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Tacoma's Nisqually river development. R. H. Richards. II Elec W 62:227-9 Ag 2 '13

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Prairie du Sac (Wis.) power plant construction work. II Eng Rec 67:603-4 My 31 '13

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Investigation of prospective hydroelectric power service for reliability. H. S. Knowlton. Eng N 69:1093-5 My 22 '13

Hydro-electric power commission of Ontario
Annual report, 1912. Elec W 61:185 Ja 25 '13**Hydrogen**

Manufacture of hydrogen from water gas.

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Manufacture of hydrogen gas for spherical balloons; portable plants for military use. II Sci Am 109:452 D 13 '13

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Current observations with a stadia float. B. L. G. Rees. plan Eng N 69:368-70 F 20 '13

Hydrographic surveying; Oakland harbor development, California. F. W. Johnson. II map Eng N 70:362-4 Ag 21 '13

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Hydrometallurgy

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Hydrometallurgy. R. Chauvenet. Met & Chem Eng 11:486-91 S '13

Hydrometallurgy and chlorination: answer to Dr. Chauvenet. J. L. Malm. Met & Chem Eng 11:669 D '13

Hydrometallurgy—joys of its theory, woes of its practice. W. F. Bleeker. Met & Chem Eng 11:538-9 O '13

Leaching of copper ores. Eng & Min J 96: 651 O 4 '13

Leaching Shannon copper ores. F. S. Schimberka. Eng & Min J 96:1107-10 D 13 '13

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Economy of a works hospital system. Sci Am S 75:356 Je 7 '13

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Occupational fatigue. Sci Am S 75:410-1 Je 28 '13

Successful factory drinking water system. W. J. Bitterlick. plan Ind Eng 13:288-9 S '13

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Emergency installation of a sterilization plant in England. II Eng Rec 67:525 My 10 '13

Hypochlorite disinfection of sewage at Providence, R. I. Eng N 70:1292 D 25 '13

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Ice and salt mixtures. G. H. Crawford, Jr. Power 37:826-6 Je 10 '13

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Combination steam-electric ice-making plant in Chicago. II Elec W 61:454-6 Mr 1 '13

Comparative costs of motive power in ice manufacturing. Elec W 62:755 O 11 '13

Comparative costs of operating ice factory by oil engines and electric motors. C. E. Rose. II Elec W 62:1225-6 D 13 '13

Comparative installation and operating costs of a combined ice-manufacturing and cold-storage plant. R. H. Tait and L. C. Nordmeyer. Power 38:606-8 O 28 '13

Cost of ice making in small plants. R. P. Kehoe. Sci Am S 75:135 Mr 1 '13

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Municipal ice-electric plant at Weatherford, Oklahoma. II plan Elec W 62:430 Ag 30 '13

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Illinois electric railways association
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Distribution of sewage sludge in settling tanks. C: Hoopes. Eng Rec 68:429-30 O 18 '13

Fresh sludge and decomposed sludge: comparative analyses and discussion of sludge-utilization possibilities. H. Bach and L. C. Frank. Eng Rec 68:331-3 S 20 '13

Imhoff sewage tank for Torrance, Cal. R. Bennett. plans Eng N 70:1132-3 D 4 '13

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Indicating the compressor. P. Neff. diag Power 38:540-2 O 14 '13

Indicator cards and horsepower of steam engines. C. A. McAllister. Int Marine Eng 18:530-3 D 13 '13

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Human element in industry. W. Talbot. Iron Age 91:366-9, 418-20 F 6-13 '13

Need of new official in certain manufacturing plants. H. C. Spaulding. Eng N 70: 35-6 Jl 3 '13

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Psychology of management. L. M. Gilbreth. Ind Eng 13:213-7 My '13

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- Industrial education needed for efficiency of state and individual. L. Bird. Am Ind 13: 26-7 My '13
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- Report by the Educational committee of the American institute of electrical engineers. Am Inst E E Pro 32:1400-39 Je '13; Discussion 32:2254-65 D '13
- School that trains boys for shop work: the William L. Dickinson high school, Jersey City, N. J. E: K. Hammond. II Mach 19:749-53 Je '13
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- Buying ink for efficiency. B. Daniels. Inland Ptr 51:110 Ap '13
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- Plant at Metaline Falls, Wash. M. W. Krejcl. II plans Am Inst Min E Bul 79:1306-14 Jl '13

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- Papers on warships at recent meeting. Int Marine Eng 18:132-3 Mr '13

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- S. A. E. and I. A. E. off on lake trip. por. Automobile 28:1150-5, 1180-1 Je 5 '13

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- England has live engineer institution. Automobile 28:1249 Je 19 '13

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- Annual meeting, March, 1913: list of papers. Int Marine Eng 18:150 Ap '13

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Effect of temperature on the puncture voltage of cable insulation. F. R. Lufkin. Elec W 61:1310 Je 14 '13

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Suspension insulators suitable for 110,000-volt transmission. J. B. Baker. II Sci Am 108:312-3 Ap 5 '13

Temperature and electrical insulation. C. P. Steinmetz and B. G. Lamme. Am Inst E E Pro 32:113-23 F '13; Discussion. 32:1673-1737 Ag '13

Uses of artificial insulating materials in the construction of electrical apparatus. H. Passavant. Sci Am S 76:47-8 Jl 19 '13

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Report of Liability insurance committee of Wisconsin electrical association. Elec Ry J 41:111-3 Ja 18 '13

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Interlaken school, La Porte, Indiana

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Interlocking rules adopted in Wisconsin. Elec Ry J 42:936-7 O 25 '13

Rules adopted by the railroad commission of Wisconsin. Ry & Eng R 53:1184-6 D 20 '13

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Sixth congress, New York, 1912. Concrete Cem 2:206 Ap '13

Work and policy. E. Reitler. Eng N 69:84-5 Ja 9 '13

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International congress of refrigeration. Elec W 61:436 Mr 1 '13

3d congress, Chicago, Sept., 1913. Eng N 70: 679-81 O 2 '13

3d meeting, Chicago, Sept., 1913. Elec W 62: 630-1 S 27 '13

Third meeting, Chicago, Sept., 1913. Ry Age 55:567-71 S 26 '13

International congress on hygiene and demography

Report of fifteenth International congress on hygiene and demography, Washington, D. C. Sept., 1912. Am Soc M E J 35:23-30 Ja '13

International congress on school hygiene

Fourth congress, Buffalo, August, 1913. Heat & Ven 10:43-5 S '13

Illumination topics at International school hygiene congress at Buffalo, N. Y., Aug., 1913. Elec W 62:464-6 S 6 '13

International electrotechnical commission

Advance report to the U. S. national committee on the Berlin meeting. Am Inst E E Pro 32:2148-62 N '13

Berlin meeting, Sept., 1913. Elec W 62:570-1 S 20 '13

Meeting at Zurich, Switzerland, 1913. Elec W 61:385-6 F 22 '13

International engineering congress, 1915

Congress to be held at the Panama-Pacific international exposition. Ry & Eng R 53: 496 My 31 '13

International exposition of safety and sanitation
 First exposition, New York, Dec., 1913. Iron Age 92:1411-2 D 18 '13
 Many devices on exhibition. Iron Tr R 53:1120 D 18 '13
 Safety methods and list of exhibits, Southern Pacific co. Ry & Eng R 53:1153-5 D 13 '13

International geological congress
 Meeting at Toronto, Canada, August 7-14. 1913. R. A. F. Penrose, Jr. J Fr Inst 176: 583-6 N 13
 Twelfth International geological congress at Toronto university, Aug., 1913. Eng & Min J 96:372-3 Ag 23 '13

International illumination commission
 4th meeting, Berlin, Germany, Aug., 1913. Elec W 62:519-20 S 13 '13
 International photometric commission becomes the International illumination commission. Elec W 62:511 S 13 '13

International motor company
 Annual report for 1912. Automobile 28:585 Mr 6 '13

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International railroad master blacksmiths' association
 21st annual convention, Richmond, Va., Aug., 1913. Ry Age (Mech ed) 87:485-94 S '13;
 Same cond. Ry Age 55:369-70 Ag 20 '13

International railway fuel association
 5th annual convention, Chicago, May, 1913. Ry & Eng R 53:485-7, 507-8 My 24-31 '13
 5th annual convention, Chicago, 1913. Ry Age 54:1178-83 My 30 '13
 5th annual meeting, Chicago, May, 1913. Eng N 69:1148 My 29 '13
 Papers and discussions at 5th annual convention, Chicago, May, 1913. Ry Age (Mech ed) 87:289-96 Je '13

International railway general foremen's association
 9th annual convention, Chicago, 1913. Ry & Eng R 53:695-7 Jl 19 '13
 9th annual convention, Chicago, 1913. Ry Age 55:96-7 Jl 18 '13
 9th annual convention, Chicago, July, 1913: papers and reports. Ry Age (Mech ed) 87: 406-7, 415-28 Ag '13
 Reports on apprenticeship, shop schedules, driving box work, and engine house efficiency. Ry Age 55:151-4 Jl 25 '13

International road congress
 Lessons from the International road congress. E: D. Sohler. Eng Rec 68:405-7 O 11 '13
 3d International road congress, London, June, 1913. Eng Rec 68:sup 53-5 Jl 19 '13
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 3d International road congress at London, 1913. N. P. Lewis. Eng N 70:184-5 Jl 24 '13

International societies
 Proposed union of international associations. E. L. Corthell. Eng N 69:306-7 F 13 '13

International typographical union
 59th annual convention, Nashville, Tenn., 1913. W. B. Prescott. pors Inland Ptr 51: 897-903 S '13

International union for the protection of industrial property
 Ratification of the convention of 1911. Sci Am 108:436 My 10 '13

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 Mercury interrupter. G: F. Worts. II Sci Am 109:35 Jl 12 '13

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Interstate commerce commission
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 Decision on coal and coke rates. Ry & Eng R 53:100-1 F 1 '13
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 New Haven collision of Sept. 2, 1913; abstract of report. Ry & Eng R 53:913-7 S 27 '13
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 Overloading the Interstate commerce commission. Eng N 69:223-4 Ja 30 '13
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 27th annual report to Congress, 1913. Ry Age 55:1228-30 D 26 '13
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 Modern automobile torpedo; the story of a great invention. R. G. Skerrett. II Sci Am 108:8-9 Ja 4 '18
 Modern industrial birth-rate. H. M. Kahler. Am Ind 14:11-3 D '13
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 Spirit of invention: the keynote of our modern age. F. W. Parker. Sci Am S 76:71 Ag 2 '18
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Iowa electrical association

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Electrolytic corrosion of iron in soils. Eng Rec 68:34-5 Jl 12 '13

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Electrolytic theory of the corrosion of iron. B. Lambert. Met & Chem Eng 11:272-4 My '13

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Concentrating low-grade iron ores in Michigan. II plan Met & Chem Eng 11:356-7 Je '13

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Electric smelting of iron ore in California. II Iron Age 92:124-6 Jl 17 '13

Electrolytic production of iron sheets and tubes, etc. K. W. Palmer and J. A. Brinell. Met & Chem Eng 11:197-203 Ap '13

Experiment in smelting titaniferous magnetite. L. O. Kellogg. Eng & Min J 96:604 S 27 '13

Goltra process for concentrating iron ores. Eng & Min J 95:475-6 Mr 1 '13

Iron blast furnace and the characteristics of its fuels. J. E. Johnson, Jr. Met & Chem Eng 11:687-93 D '13

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Magnetite in mattes and slags. E. W. Walter. Eng & Min J 95:213-4 Ja 25 '13

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Iron mining in Minnesota. Eng & Min J 95: 1295 Je 28 '13

Marvelous development of the Mesabi range. Iron Age 92:510-1 S 4 '13

Milling system of mining Mesabi iron. Eng & Min J 96:545-6 S 20 '13

Mining methods on the Mesabi range. Iron Tr R 53:450-3 S 11 '13

Notes on the Cuyuna range. L. O. Kellogg. II map Eng & Min J 96:1199-1203 D 27 '13

Outline of Mesabi toppling method. plan Eng & Min J 96:578-80 S 27 '13

Underground costs in Minnesota iron mining. Eng & Min J 96:408 Ag 30 '13

New York

Magnetite mines near Port Henry, N. Y. L. O. Kellogg. II Eng & Min J 96:863-8 N 8 '13

Methuselah among American mines: the Sterling iron mine, New York. L. O. Kellogg. II Eng & Min J 96:431-3 S 6 '13

Notes on Lake Champlain iron mines. L. O. Kellogg. Eng & Min J 96:1065-7 D 6 '13

Sweden

Mining magnetite by steam shovel in Sweden. A. S. Rice. II Iron Tr R 53:953-60 N 27 '13

United States

American iron-ore reserves. E. C. Eckel. Eng M 44:7-16 O '12

Mining iron ore in eastern and southern states. D. E. Woodbridge. Iron Tr R 53: 379-80 Ag 28 '13

Wisconsin

Montreal iron mine, Gogebic range, Wis. II Eng & Min J 96:955-8 My 10 '13

Iron molder's union

Present attitude and activities of organized labor. Iron Age 92:1219-21 N 27 '13

Iron ores

American iron-ore reserves. E. C. Eckel. Eng M 44:7-15 O '12

Iron ores —Continued.

- Applied geology, Michigan iron ranges. P. B. McDonald. *Diags Eng & Min J* 96:208-10 Ag 2 '13; *Same. Sci Am S* 76:235 O 11 '13
- Brown iron ores as cavity fillings. E. C. Eckel. *Il Eng & Min J* 96:1-2 Ja 5 '13
- Chromiferous iron ores of Greece. *Iron Tr R* 53:624 O 9 '13
- Coke and iron ore freight rate decisions. *Iron Age* 91:1478-80 Je 19 '13
- Coleraine iron ore washing plant. J. U. Sebenius. *Il plan Iron Age* 92:452-5, 479-80 Ag 28 '13
- Cuban iron-ore reserves. D. Whitaker. *Eng M* 46:253-4 N '13
- Cuban ore beds; world's greatest iron-ore deposits. D. A. Willey. *Il Eng M* 44:867-83 Mr '13
- Developments on Michigan iron ranges. P. B. McDonald. *Il Eng & Min J* 96:335-9 Ag 23 '13
- European ore disappears from eastern market. C. J. Stark. *Il Iron Tr R* 52:145-51 Ja 9 '13
- Experiments with titaniferous ores by McIntyre iron co. *Iron Tr R* 53:797-8 O 30 '13
- Extent of the Chilian iron ore deposits. map *Iron Tr R* 52:459-62 F 20 '13
- Great ore deposits acquired by Bethlehem co. *Il map Iron Tr R* 52:268-9 Ja 23 '13
- Important changes in coke and iron ore rates. *Iron Tr R* 52:1415-6 Je 19 '13
- Increase in iron content of Lake Superior ores. *Iron Tr R* 52:815-6 Ap 3 '13
- Increased output of merchant lake ore. O. J. Abell. *Iron Age* 92:514-5 S 4 '13
- Iron ore deposits of the southern states. E. C. Eckel. *Il map Iron Tr R* 52:77-83 Ja 2 '13
- Iron ore resources of Chile. C: Vattier. *Eng & Min J* 95:234-6 Ja 25 '13
- Iron-ores of the South range of the Cuyuna district, Minnesota. C. Zapffe and W. A. Barrows, Jr. *Am Inst Min E Bul* 74:215-25 F '13
- Lake Superior and Cuban iron ores. D. A. Willey. *Il Mines & Min* 23:340-3 Ja '13
- Lake Superior iron ore district. D. E. Woodbridge. *Eng & Min J* 95:85-6 Ja 11 '13
- Lake Superior iron ore leases. C. Zapffe. *Eng & Min J* 95:338 F 8 '13
- Lake Superior iron-ore outlook for 1914. *Eng & Min J* 96:869-70 N 8 '13
- Letter to Harper's weekly correcting misstatements in an article on iron ores. H. V. Winchell. *Eng & Min J* 95:508 Mr 8 '13
- Ore experts testify for U. S. Steel corporation. *Iron Age* 92:817-9 O 9 '13
- Ore shipments from Lake Superior ranges. *Iron Tr R* 52:586-9 Mr 6 '13
- Position of the titaniferous magnetites. *Eng & Min J* 96:878-9 O 11 '13
- Texas iron ore deposits. R. Linton. *Il map Eng & Min J* 96:1153-6 D 20 '13
- Titaniferous iron ore investigation. *Eng & Min J* 96:654 O 4 '13
- Titaniferous iron-ore myth. *Eng & Min J* 96:705-6 O 11 '13
- Titaniferous iron ores in the United States, their composition and economic value. J. T. Singewald, Jr. *Il U S Bur Mines Bul* 64:1-141 '13
- Vast ore deposits of Cuba. H. Hale. *Sci Am* 109:142 Ag 23 '13
- Venezuelan iron ore development. *Il map Iron Tr R* 52:685-7 Mr 20 '13
- Witnesses tell of iron ore reserves. *Iron Tr R* 53:715-6 O 16 '13
- See also* Iron industry; Iron metallurgy; Iron mines and mining
- Iron rust.** See Corrosion
- Iron silver mining co., Leadville, Colo.** Report for 1912. *Eng & Min J* 95:860 Ap 26 '13
- Iron trade.** See Iron industry and trade
- Iron ware.** See Cast iron ware
- Iron work.** See Ironwork
- Iron works**
- Blast furnaces planned for New York district. *Iron Tr R* 53:683-4 O 16 '13
- Iron and steel output cut down by floods. *Iron Age* 91:861-4 Ap 3 '13
- Iron making in New York harbor. *Iron Age* 92:919 O 23 '13
- Iron smelting in Maryland in the 18th century. H. W. Lewis. *Il Iron Tr R* 53:459-60 S 11 '13
- New iron and steel works construction. *Iron Age* 91:105,122-7 Ja 2 '13
- Rehabilitation from the Dayton flood. K. G. Martin. *Il Iron Age* 91:1112-5 My 8 '13
- Situation in the flooded districts. *Iron Age* 91:917-9 Ap 10 '13
- Utility of efficiency-records in the manufacture of iron. J. J. Porter. *Am Inst Min E Bul* 76:543-53 Ap '13
- See also* Foundries; Youngstown sheet-and-tube co.
- Ironwork**
- Manufacture of chilled iron car wheels. F. C. Weber. *Met & Chem Eng* 11:92-4 F '13
- See also* Forging; Iron industry; Metal work; Welding; Wrought iron
- Ironwork, Artistic**
- Artistic treatment of cast iron. B. J. Fletcher. *Foundry* 41:354-6 S '13
- Early American hardware; an interesting collection of Dutch-colonial examples. G. W. Nash. *Il Arch Rec* 34:329-33 O '13
- Ironworkers**
- Accidents and diseases of ironworkers. F. Roepke. *Ind Eng* 13:52-3 F '13
- Irrigation**
- Agriculture, electricity and irrigation: electrically driven pump. P. A. Bates. *Il Sci Am* 108:472 My 24 '13
- Causes of inefficiency of irrigation. A. S. Gibb. *Eng Rec* 68:608-9 N 29 '13
- Concrete pipe and overflow basins for distributing irrigation water on the Sacramento valley project. E. C. Mills. *Il Eng Rec* 67:652-4 Je 14 '13
- Duty of water for irrigation; amount and character of water losses as determined by extensive studies in Idaho. *Eng Rec* 67:305-6 Mr 15 '13
- Engineering principles applied to farm irrigation. A. L. Harris. *Il Eng N* 70:1172-5 D 11 '13
- Experience with wood-stave pipe in irrigation. R. K. Tiffany. *Il Eng N* 69:244-7 F 6 '13
- Hydraulic laboratory for irrigation investigations, Fort Collins, Colo. V. M. Cone. *Il plan Eng N* 70:662-5 O 2 '13
- Irrigation and the need for hydrographic surveys. *Eng Rec* 67:566 My 24 '13
- Irrigation pumping plants. *Eng Rec* 68:53-4 Ja 12 '13
- Module or constant-discharge device for irrigation works. *plan Eng N* 69:502 Mr 18 '13
- Permanent fertility of irrigated lands. *Eng Rec* 67:171 F 15 '13
- Private irrigation project as an investment. T. Berry. *Eng N* 70:854-6 O 30 '13
- Reinforced-concrete chutes on Boise project. F. W. Hanna. *Il Eng Rec* 67:500-1 My 3 '13
- Reservoir and canal losses in irrigation. *Il Eng N* 69:618-23 Mr 27 '13
- Seasonal duty of irrigation water; conclusions based on observations made in the Boise valley, Idaho. F. W. Hanna. *Eng Rec* 67:90-1 Ja 25 '13
- Seepage losses in irrigation systems; their economic significance. E. G. Hopson. *Il Sci Am S* 75:56-9 Ja 25 '13
- Selling water by current meter measurement. J. C. Allison. *Il Eng N* 69:68-70 Ja 9 '13
- Value of snow surveys in irrigation: methods for predicting run-off from snow-clad mountain areas. J. C. Alter. *Il Eng M* 45:737-40 Ag '13
- What is the matter with irrigation? *Eng N* 69:1237-40 Je 12 '13
- See also* Dams; Drainage; Irrigation canals; Reservoirs; Water rights

Irrigation —Continued.

Cost

- Cost of irrigation works per acre supplied with water. Eng N 69:1008-9 My 15 '13
- Cost of reclamation service and other irrigation projects in Colorado. J: E. Field. Eng N 70:348-55 Ag 21 '13
- Unestimated cost in the development of irrigation projects. Eng Rec 67:510-1, 529-30 My 10 '13
- Unestimated cost in the development of irrigation projects. C: K. Fox. Eng Rec 67: 620 My 31 '13

Arizona

- Irrigation of Santa Cruz valley. M. C. Hindreider. II map Eng Rec 68:200-1, 242-4 Ag 23-30 '13

Babylonia

- Reclamation of ancient Babylonia by irrigation. E. J. Banks. II map Eng N 69:468-9 Mr 6 '13

California

- South San Joaquin irrigation project, California. II Eng N 70:748 O 16 '13
- Study of irrigation heads in the Modesto and Turlock irrigation districts, Cal. Eng N 70: 502-3 S 11 '13
- Well-water irrigation system in southern California. II plan Eng Rec 67:241 Mr 1 '13

Colorado

- Cost of reclamation service and other irrigation projects in Colorado. J: E. Field. Eng N 70:348-55 Ag 21 '13

Idaho

- Twin Falls-Oakley irrigation project. A. M. Korsmo. II plans Eng N 69:516-21 Mr 13 '13

Oregon

- Oregon state irrigation congress. Eng N 69: 313 F 18 '13
- State and federal co-operation in irrigation work in Oregon. E. G. Hopson. Eng Rec 68:685-6 D 20 '13

Philippine Islands

- Public works in the Philippine Islands under the American régime. H. F. Cameron. II Eng Rec 68:202 Ag 23 '13

Texas

- Rapid construction on Medina valley irrigation project in Texas. T. Bartlett. II plan map Eng N 70:508-13 S 11 '13

United States

- Federal report on Carey act irrigation projects. Eng N 69:1321 Je 26 '13
- Government irrigation work. F. K. Lane. Eng N 70:1322 D 25 '13
- Irrigation water-supply for the Pima Indians. A. P. Davis. II Eng N 70:956-7 N 13 '13
- Ten years of government irrigation work; review of activities and experiences of U. S. reclamation service since passage of Newlands act. Eng Rec 67:128-30 F 1 '13; Same. Sci Am S 75:142-3 Mr 1 '13

Utah

- Great irrigation project at Strawberry valley. N. Forest. II Sci Am 108:288-9 Mr 29 '13

Washington

- Wapato irrigation project in northern Washington. Eng Rec 67:11-2 Ja 4 '13

Irrigation canals

- Facts about percolation from canals. W. C. Hammatt. diags Eng N 70:881-2 O 30 '13
- Lining an irrigation ditch with Hess metallic fluming. E. M. Chandler. II Eng N 70: 464-5 S 4 '13
- Lining ditches with reinforced concrete. II Concrete Cem 2:265-7 Je '13
- Main canal of Medina irrigation project. II plans Eng Rec 68:424-6 O 18 '13
- Metal flumes for irrigation canals. Eng N 70:1316-8 D 25 '13
- Metal flumes for irrigation canals. F. W. Hanna. II Eng N 70:1077-9 N 27 '13
- Reservoir and canal losses in irrigation. II Eng N 69:620-3 My 27 '13

Seepage losses from earth canals. E. A. Moritz. Eng N 70:402-5 Ag 28 '13

Ishikari river, Japan

- Precipitation and runoff; with special relation to ice conditions. B. Okazaki. plans Eng N 70:850-2 O 30 '13

Islands, Floating. See Floating islands

Isthmian canal commission

- Extracts from annual report of Isthmian canal commission. G: W. Goethals. Eng N 70:1122-5 D 4 '13

J

Jacks

- Jack for pulling drill rods and sounding bars. plan Eng Rec 67:37 Ja 11 '13
- New design of journal jack. II Am Eng 87: 45 Ja '13

Jails. See Prisons

Jamaica, New York

- Jamaica improvement of the Long Island railroad. II plans Eng Rec 67:46-7 Ja 11 '13
- Long Island improvements at Jamaica. II map plans Ry Age 65:183-9 Ag 1 '13

James, Arthur Curtiss

- Country estate of Arthur Curtiss James: views. Arch & Bldg 45:439-51 N '13

Japan

- Economic conditions**
- Regarding manufacturing in Japan. J: S. Nicholl. Am Ind 13:19-21 Mr '13

Japanning

- Fireproof japanning tank. A. P. Broadhead. diag Mach 19:547-8 Mr '13
- See also Varnish and varnishing*

Jenson, Nicolas, d. 1481?

- Printers of note. W. C. Bleloch. Inland Ptr 50:676-7 F '13

Jersey City, New Jersey

- Education**
- School that trains boys for shop work: the William L. Dickinson high school. E: K. Hammond. II Mach 19:749-53 Je '13

Jetties

- Problems in removing sand Columbia river bar. Eng Rec 68:731 D 27 '13
- Rebuilding Humboldt Bay, Cal. jetties. Eng Rec 68:464-5 O 25 '13

Jigs

- Clamping work in jigs. diags Mach 20:300-3 D '13
- Drill jig for cock keys. J. M. Henry. diags Am Mach 38:786-7 My 8 '13
- Economy in tool design. E. H. Pratt. diags Mach 20:38-40 S '13
- Jig for milling an irregular shaped guide. C. F. Meyer. diags Mach 19:359-61 Ja '13
- Jig for milling cam slots. C. F. Meyer. diags Mach 19:54-5 S '12
- Making of bushings for drill jigs. F. B. Jacobs. diags Mach 19:12-5 S '12
- Rotating jig for drilling connecting-rods. II Mach 19:882 Jl '13
- Two drill jig attachments. C. F. Meyer. diags Mach 19:429-30 F '13
- Universal drill jig. C. F. Meyer. plans Mach 20:4-5 S '13

Jigs for ore treatment

- Dry concentration and separation of minerals: the Plumb pneumatic Jig. II Met & Chem Eng 11:722-4 D '13
- Plumb pneumatic Jig. II: S. Wiard. II Eng & Min J 98:1090-1 D 6 '13
- Woodbury slime classifier. E: T. Wright. plan Colliery 33:397-8 F '13

Job composition. See Typesetting—Job work

Joint committee on concrete and reinforced concrete

- Abstract of second report. Eng N 69:258-64 F 6 '13

Second report: a review. Eng N 69:273-4 F 6 '13

Joints (geology)

- Laws of jointing. B. Stevens. Am Inst Min E Bul 79:1285-1303 Jl '13

Joliet, Illinois**Railroads**

Newly completed union station at Joliet. Il plan Eng Rec 67:74-5 Ja 18 '13
Track elevation at Joliet. map plan Eng N 69:952-5 My 8 '13

Jones, Howard M.

Sketch. por Ry & Eng R 53:466 My 17 '13

Jones, Inigo

Contributions to the history of the English playhouse. H. Bell. Il Arch Rec 33:262-7 Mr 13

Journalism

Science and journalism. Sci Am 108:426 My 10 '13

See also Editing; House organs; Trade papers

Jovian order

11th annual Jovian congress, New York city, Oct., 1913. Elec W 62:777-9 O 18 '13

Progress of the Jovian order—the electrical fraternity. E. C. Bennett. Elec W 62:143-4 Jl 19 '13

Judges

Technically trained judges to decide patent cases. C. A. P. Turner. Eng N 69:1241 Je 12 '13

Jungfrau

Jungfrau railway. Il Sci Am 109:360 N 8 '13

Junior institution of engineers, Great Britain

Making membership in an engineering society a tangible asset. Eng N 70:869-71 Ag 21 '13

Junkers engine

Junkers engine. F. E. Junge. Il Power 37: 120-1. 417-8 Ja 28, Mr 25 '13

Junkers vs. Diesel engine. A. M. Levin. Power 37:671-2 My 13 '13

Trials of a 100 brake horse-power marine oil engine. Il Sci Am S 76:348-9 N 29 '13

K**Kahn bill**

Legalized blackmail—Kahn bill. L. H. Baekeland. Elec W 62:1146-7 D 6 '13

Manufacturers and the Kahn law. Iron Age 92:1240 N 27 '13

Remarkable offer by the United States government to owners of patents and copy rights. Eng N 70:934-5 N 6 '13

Kamerun

Northern railway of Cameroons. Il Sci Am S 75:84 F 8 '13

Kansas City, Missouri

Land-tax system or benefit assessments for public improvements. G. Kessler. Eng N 69:1026 My 15 '13

Public comfort stations at Kansas City, Mo. Dom Eng 62:2-7 Ja 4 '13

Parks

Kansas City park system. J. H. Lowry. Il Munic Eng 44:2-7 Ja '13

Railroads

Beautifying Kansas City union station surroundings. B. J. Lubschéz. Il Munic Eng 44:453-4 My '13

Construction work of the Kansas City terminal Ry. Il Ry & Eng R 53:225-30 Mr 15 '13

Kansas City passenger terminal. Il plan map Ry Age 54:1121-8 My 23 '13

Kansas City terminal railway. Il plan map Eng N 70:237-44 Ag 7 '13

Rapid transit

Franchise negotiations in Kansas City resumed. Elec Ry J 41:1031 Je 7 '13

Franchise progress in Kansas City. Elec Ry J 42:469-70, 510-1 S 20-27 '13

Kansas City appraisals. Elec Ry J 41:889 Mr 1 '13

Mayor Jost's ideas on new franchise of Metropolitan street Ry., Kansas City. Elec Ry J 41:555 Mr 22 '13

Report on street railway system. Elec Ry J 41:716-20 Ap 19 '13

Street-railway valuation. Eng N 69:1053-7 My 22 '13

Unit subway construction in Kansas City. Il diag Eng Rec 68:228-30 Ag 30 '13

Kansas City, Clay County & St. Joseph railway

Building a 1200-volt electric railway. R. P. Woods. Il plan map Eng N 70:688-94 O 9 '13

Center-entrance interurban cars. Il Elec Ry J 41:120-2 Ja 18 '13

Important and extensive interurban railway.

Il plans map Elec Ry J 42:212-21 Ag 9 '13

Kansas gas, water, electric light and street railway association

16th annual convention at Hutchinson, Oct.,

1913. Elec W 62:783-5 O 18 '13

Kansas master plumbers' association

22nd annual convention, Kansas City, Kan., Mar. 1913. Dom Eng 62:317-20 Mr 15 '13

Kansas river

Concrete revetment work on the Kansas river improvement. F. M. Clutter. Il diag Eng Rec 67:632 Je 7 '13

Kansas river valley

Protection against floods. J. Y. Oleson. map Eng Rec 67:631-2 Je 7 '13

Kaolin

Mining and treatment of feldspar and kaolin. A. S. Watts. Il map U S Bur Mines Bul 53: 1-164 '13

Karns tunnelling machine

O. J. Grimes. Il Eng N 69:470-1 Mr 6 '13

Katanga

Copper El Dorado in mid-Africa—the Katanga. C. F. Talman. map Sci Am 108:450 My 17 '13

Kathode rays. See Cathode rays

Kelp

Kelp and other sources of potash. F. K. Cameron. Il map J Fr Inst 176:347-83 O '13

Kelsey, Albert, and Cret, Paul P., architects

Pan American Union and its annex, Washington, D. C. C. M. Price. Il plans diag Arch Rec 34:385-457 N '13

Kemp, James Furman, 1859-

James Furman Kemp, president, Am. Inst. M. E. F. D. Adams. Eng N 69:199-200 Ja 30 '13

Portrait. Eng N 69:196a Ja 30 '13

Kensico reservoir

New York city's water supply system. Il Sci Am S 75:140 Mr 1 '13

Traveling plant for casting concrete blocks for Kensico dam, Valhalla, N. Y. Il Eng Rec 67:528 My 10 '13

Kentucky state association of master plumbers

9th annual convention, Covington, April, 1913. Dom Eng 63:96-8 Ap 26 '13

Keokuk, Iowa

Historical review of the Keokuk hydroelectric development. Il Elec W 62:462-4 S 8 '13

Hugh L. Cooper, who built the Keokuk dam.

W. P. Green. Sci Am 109:366 N 8 '13

Mississippi lock at Keokuk. Il Eng N 70:964-72

N 13 '13

Opening of the world's greatest power plant at Keokuk. Il Sci Am 109:212-3 S 13 '13

World's largest water-power plant. Il plans Elec W 61:1157-68 My 31 '13

Kerosene

Difficulties in kerosene carburetion. Automobile 28:973 My 8 '13

Fuel economics of the oil engine. J. A. Secor. Iron Age 91:974-6 Ap 17 '13

Gasoline and kerosene situation. J. A. Secor. Sci Am 108:459 My 17 '13

Kerosene for steel heating furnaces. H. C. Spillman. Il plan Mach 20:125-6 O '13

Power from kerosene: a system whereby oil, kerosene and distillates are used in the ordinary type of gas engine. L. W. Ellis and W. R. Dray. Il Sci Am S 75:105-6 F 15 '13; Excerpts. Sci Am 108:246-7 Mr 15 '13

S. A. E. talks kerosene. Automobile 28:586 Mr 6 '13

Kerosene —Continued.

Solving the fuel problem for the motor truck.
H. W. Slauson. II diag. Mach 20:121-4 O '13;
Same. Sci Am S 76:292-4 N 8 '13
Use of kerosene in motor. Automobile 28:
608 Mr 6 '13
Vaporizing kerosene by partial combustion.
Sci Am 109:418-9 N 29 '13

Waning supply of gasoline. J: A. Secor. Sci
Am S 75:271-2 Ap 26 '13

See also Gas and oil engines; Petroleum

Kerosene engines. See Gas and oil engines

Kerr lake mining co., Cobalt, Canada
Kerr lake mining company costs. Eng & Min
J 96:1075 D 6 '13

Keya. See Locks and keys**Keys and keyways (machinery)**

Cutting keyways in a lathe. W. H. Trueman.
II Sci Am 109:148 Ag 28 '13
Dimensions of taper keys and keyways; with
data sheet supplement. G. G. Dana. Mach
19:448 F '13
Keys and how to remove them. diag. Eng
& Min J 95:20 Ja 4 '13
Keys and keyways for automobile. II Auto-
mobile 29:424-6, 467-9 S 4-11 '13

Keystone railway club

Fifth meeting, Philadelphia, March, 1913.
Elec Ry J 41:505-7 Mr 15 '13
Sixth meeting, York, Pa., June, 1913. Elec
Ry J 41:1022-5 Je 7 '13

Kilauea

Lava fountains of Kilauea. F. A. Perret. II
Sci Am S 75:332-3 My 24 '13

Klins

Mystery of the predynastic furnace solved.
M. N. Buckman. II Sci Am S 76:101-2 Ag
16 '13

Kincaid, Illinois

Model mining town of Kincaid. map Eng
Rec 68:639-40 D 6 '13

Kinematics of machinery. See Machinery.**Kinematics of****Kinetophone**

Telephone aid to Edison talking pictures. II
Elec W 61:741 Ap 5 '13

Kitchen utensils

Use of aluminium for kitchen and eating
utensils. Sci Am S 75:64 Ja 25 '13

Kitchens, Automobile

Automobile field kitchen. II Sci Am 108:500
My 31 '13

Kite photography. See Photography, Aerial**Kluc, Karl**

Portrait. Inland Ptr 51:106 Ap '13

Knots and splices

Short splice for rope drive. C. L. Mallory.
Power 37:461 Ap 1 '13

Splicing transmission rope. II Eng & Min J
96:110-1 Jl 19 '13

Splicing transmission rope. II Sci Am S 76:244

O 18 '13

Three-two method of rope splicing. A. Wil-
son. diag. Colliery 33:684-5 Jl 13

Knowledge, Embroidery of. Sci Am 108:486 My

31 '13

Kobe, Japan**Harbor**

Harbor construction at Kobe and Yokohama,
Japan. W. T. Howe. II plan Eng N 70:
556-7 S 18 '13

Kongo (battleship)

Japanese battle-cruiser Kongo. II Sci Am
109:128 Ag 18 '13

Korea

Trip through northern Korea. H. W. Turner.
II map Am Inst Min E Bul 76:561-9 Ap '13

Krom, Stephen R., 1836-1913

Sketch. por Eng & Min J 95:718-9 Ap 5

'13

Krupp works

Workmen's dwellings of Krupp works. II Iron

Age 92:611 S 18 '13

Kunheim metal. See Pyrophoric alloys**Kyanizing. See Wood preservation****Kyshtim corporation, London**

Kyshtim corporation. Eng & Min J 96:358 Ag
23 '13

L

La Belle iron works, Steubenville, Ohio
Annual report for 1912. Iron Age 91:718 Mr
20 '13

Labor and capital

Employer's right to employee's invention. A.
F. Jobke. Elec W 61:152 Ja 18 '13
Is taking a job selling a commodity or making
an investment? Am Mach 38:873-6 My
22 '13

Practical principles of rational management.

A. H. Church. Eng M 45:24-33 Ap '13
Relationship of scientific management to
labor. J: P. Frey. Iron Tr R 52:917-8 Ap
17 '13

See also Arbitration, Industrial; Cooperation;
Employees; Industrial betterment; Labor
contracts; Strikes; Trade unions; Wages;
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Labor and laboring classes

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living; Efficiency, Industrial; Factory sanita-
tion; Hours of labor; Hygiene, Industrial;
Industrial betterment; Industrial education;
Industrial laws; Industry; Labor and
capital; Labor contracts; Labor laws; Miners;
Motion study; Occupations—Diseases and
hygiene; Occupations, Dangerous; Pen-
sions; Piece-work; Railroads—Employees;
Safety devices; Scientific management;
Strikes; Time study; Trade unions; Wages;
Welfare work in industry; Workmen's com-
pensation

Dwellings

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Brazil

Wages in the Amazon river valley. H. E.
Collins. Power 37:521-3 Ap 15 '13

Germany

Workmen's houses in Germany. plans Ind
Eng 13:374-6 S 18

Japan

Regarding manufacturing in Japan. J: S. Ni-
choll. Am Ind 13:19-21 Mr '13

United States

National iron and steel labor report; con-
ditions existing in 1910. Iron Age 91:964-
5 Ap 17 '13

Labor contracts

Contract systems in Michigan copper mines.
Eng & Min J 96:1177-8 D 20 '13

Labor disputes

Presidents Brown and Rea on labor dis-
putes. Ry & Eng R 53:220 Mr 15 '13

Labor laws

Anti-injunction bill in New Jersey. J. A.
Emery. Am Ind 13:9-11 Ap '13
Educating illiterate employees. Iron Age 92:
861-2 O 16 '13

Foreign requirements governing work under
compressed air. P. Seurot. Eng N 70:566
S 18 '13

Legislation affecting the time and manner
of payment of railroad wages. A. B. Jones.
Iron Age 55:871-2 N 7 '13

New York law governing work under com-
pressed air. Eng N 70:307-8 Ag 14 '13

Oversight in the compressed-air law. F.
Richards. Eng N 70:426-6 Ag 28 '13

Recent eight-hour legislation for government
work. G. A. King. Eng Rec 67:526-8 My
10 '13

See also Industrial laws; Mining laws;
Workmen's compensation

Labor-saving appliances of the modern great
hotel. J. B. Baker. II Sci Am 109:412-3 N 29
'13

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Laboratories of the modern factory: apparatus and investigations of the Studebaker corporation, Detroit. E. F. Lake. II Iron Age 92:387-91 Ag 21 '13
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Manufacturer's duty in the electric railway field. J. H. Drew. Elec Ry J 42:25 Jl 5 '13

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Manufactures

Agriculture, manufactures and railways, a study of capital values and net returns. Sci Am S 75:66-7 F 1 '13

Chemical engineer and industrial efficiency. W. M. Booth. Sci Am S 75:210-1 Ap 5 '13

Contract machine shop sales advantages. G. D. Crain, Jr. Iron Age 91:1013 Ap 24 '13

How patented inventions have increased the national wealth. Sci Am 108:414 My 3 '13

Industrial need of technically trained men: scientific manufacturing and the opportunities it offers. W. B. Kaempfert. Sci Am 108:252 Mr 15 '13

Manufacturing problems. F. D. Bell. il Sci Am 108:577-8 Je 28 '13

Manufacturing specialist and the influence of new industries. Ind Eng 18:12-3 Ja '13

Manufacturing the circular cut file. C. L. Lucas. il Sci Am S 75:92-3 F 8 '13

Modern practice in manufacturing plant appraisal. C. W. McKay. Mach 19:686-7 My '13

Price fixing by a monopoly and price fixing by a single manufacturer. W. Kaempfert. Sci Am 108:566 Je 21 '13

Price maintenance and modern merchandising. W. Kaempfert. Sci Am 109:20 Jl 5 '13

See also Automobiles; Box making; Cost accounting; Factories; Foundries; Fuel; Glass manufacture; Hardware; Iron industry; Labor and laboring classes; Leather; Machine shops; Machinery; Manufacturers; Metal work; Mills and millwork; Paper; Patents; Pottery; Rubber; Scientific management; Steel industry; Textile industry and fabrics; Tubes; Waste products; Watch making

Costs

Axioms concerning manufacturing costs. H. R. Towne. Iron Age 91:282-5 Ja 23 '13

See also Cost accounting

Map photography

Photographing blueprint maps. H. A. Williamson. Colliery 33:689 Jl '13

Maple

Experiments in the preservative treatment of red-oak and hard-maple crossties. F. M. Bond. il U S Forest Serv Bul 126:9-92 '13

Uses of commercial woods of the United States. H. Maxwell. U S Agric Bul 12:32-56 '13

Maps

Mapping the sphere on a plane. il Sci Am 109:66 Jl 28 '13

See also Geology—Maps; Map photography; Railroad maps; Relief maps; Topographical maps

Maps, Aeronautic

Aviation map of the world and marks for aviators. map Sci Am S 76:179 S 20 '13

Maps, Relief. See Relief maps**Maps, Topographical.** See Topographical maps**Marine boilers.** See Boilers, Marine**Marine engineering**

Marine engineering in the good old days. Int Marine Eng 18:313-4 Jl '13

Rebuilding a double bottom under engines. E. Benvenuti. diags Int Marine Eng 18:330-2 Ag '13

Underwater horizontal ash discharger. F. P. Palen. il Eng M 46:287-8 N '13

Marine engineering. —Continued.
Varied experience at sea. C. C. Weddell. Int Marine Eng 18:126-7 Mr '13
See also Boilers, Marine; Electricity on ships; Marine engines; Propellers; Ship propulsion; Shipbuilding; Steam turbines, Marine

Study and teaching
McAndrew's floating school. C. A. McAllister. diag Int Marine Eng 18:18-20, 53-5, 122-5, 167-70, 212-4, 259-61, 310-2, 342-6, 393-5, 446-8, 43-6, 530-3 Ja-D '13 (to be cont)

Marine engines
Carels-Diesel engine applied to motor ship Eavestone. II Eng M 44:601-4 Ja '13
Development of producer gas motor boats. II Int Marine Eng 18:484-6 N '13
Engineering progress in the U. S. navy. Power 37:10-2 Ja 7 '13
Engineering progress in U. S. navy. C. W. Dyson. II Power 37:106-9 Ja 28 '13
First American-built marine Diesel engines. II diag Power 37:780-2 Je 3 '13
Fuel oils for use in marine Diesel engines. II Int Marine Eng 18:104-5 Mr '13
Gas engine yacht. R. MacIntyre. II Sci Am 109:165-6 Ag 30 '13
Geared turbine. Power 37:598 Ap 29 '13
German Diesel engined tank ship Hagen. II plans Int Marine Eng 18:207-11 My '13
Incidents relating to the design, care and handling of marine engines, boilers and auxiliaries. See monthly numbers of International marine engineering
Possibilities of the marine oil engine. T. Lucas. plans Int Marine Eng 18:56-9 F '13; Same cond. Eng M 45:114-7 Ap '13
Possibilities of the marine oil engine. J. F. Wentworth. Int Marine Eng 18:129-30 Mr '13
Problem of marine oil engines for ocean liners. Sci Am 109:2 Jl 5 '13
Single screw motor ship of 1,500 b. h. p. J. R. Wilson. II plan Int Marine Eng 18: 102-4 Mr '13
Small internal combustion engines on land and water. Sci Am 108:304 Ap 5 '13
Trials of a 100 brake horse-power oil engine: Junkers engine. II Sci Am S 76:348-9 N 29 '13
Twin-screw motor-ship Hagen—a new Krupp two-stroke type Diesel-engine tank vessel of 2400 p. hp. J. R. Wilson. II Eng N 69: 906-7 My 1 '13
Twin-screw motor ship Monte Penedo. II Eng M 44:257-61 N '12
Word of warning: navies and the policy of oil fuel. Sci Am 109:46 Jl 19 '13
See also Boilers, Marine; Gas and oil engines; Marine engineering; Motor ships; Steam engines; Steam turbines, Marine

Marine insurance. See Insurance, Marine

Marine law. See Maritime law

Marine lighting. See Acetylene for lighthouses, buoys, etc.

Marine painting. See Painting, Submarine

Marine steam turbines. See Steam turbines, Marine

Marine surveying. See Hydrographic surveying

Marine zoology
Attached animals. II Sci Am S 76:236-7 O 11 '13

Maritime law
Safety of life at sea. J. Donald. J Fr Inst 175:15-42 Ja '13
See also Shipping; Steamboat inspection

Marquette (Mich.) Light and power commission
24th annual report for year ended Mr. 11, 1913. Elec W 61:1133-4 My 31 '13

Marsh gas. See Firedamp

Marshes
Reclamation of swamp lands in North Carolina. J. H. Pratt. Eng N 69:108 My 29 '13
See also Drainage; Reclamation of land

Mason valley mines company
Mason valley mines, Lyon county, Nevada. Eng & Min J 95:1185-6 Je 14 '13

Masonry
Preventing dampness in masonry. II Eng Rec 67:82-3 Ja 18 '13; Same. Concrete Cem 2: 91 F '13
See also Arches; Brickwork; Bridges; Building; Cement; Dams; Foundations

Massachusetts institute of technology
Co-operation between Massachusetts institute of technology and Harvard university. Eng N 69:733 Ap 10 '13
Co-operation in educational effort. Sci Am 108:153 F 15 '13
Layout for the new technology. Arch Rec 33:272-5 Mr '13
Plans for new buildings. II plan Eng N 70: 1053-5 N 20 '13

Massachusetts master plumbers association
Annual convention, Boston, April, 1913. Dom Eng 68:70-3 Ap 19 '13

Massachusetts railroad commission
44th annual report, 1912. Elec Ry J 41:162 Ja 25 '13

Master blacksmiths' association. See International railroad master blacksmiths' association

Master boiler makers' association
Addresses and abstracts of the reports and the discussions at the 7th annual convention. (Chicago, May, 1913. Ry Age (Mech ed) 87:314-6 Je '13
7th annual convention, Chicago, May, 1913. Ry & Eng R 53:501-2, 510 My 31 '13
7th annual convention, Chicago, 1913. Ry Age 54:1180-3 My 30 '13

Master car and locomotive painters' association
44th annual convention, Ottawa, Canada, Sept. 1913. Ry Age 55:495-8 S 19 '13
44th annual convention; papers and discussion on care of steel cars, rust inhibitive paints, safety first, and brushes for painting steel. Ry Age (Mech ed) 87:539-45 O '13

Master car builders' association
47th annual convention, Atlantic City, June, 1913. Eng N 69:1341-4 Je 26 '13
47th annual convention, Atlantic City, June, 1913. Ry & Eng R 58:595-8, 607-11, 627-8, 632-4 Je 21-28 '13
47th annual convention, Atlantic City, June, 1913; program. Ry & Eng R 58:517 Je 7 '13
Papers at convention, Atlantic City, June, 1913. Elec Ry J 41:1113-4 Je 21 '13

Master mechanics' association. See American railway master mechanics' association

Master mechanics (railroad)
Division master mechanic. Am Eng 87:70-1 F '13

Master steam and hot water fitters, National association of. See National association of master steam and hot water fitters

Matches
Menace of the match. F. H. Wentworth. Am Ind 13:19 Ap '13

Materials. See Building materials; Road materials

Materials, Strength of. See Strength of materials

Mathematical instruments
See also Calculating machines; Drawing instruments; Planimeters; Slide rule

Mathematical recreations
Mathematical diversions. C. Jacobus. Sci Am S 76:43 Jl 19 '13
Mathematical diversions. F. B. Selkin. Sci Am S 75:383 Je 14 '13
Mathematics for recreation. F. B. Selkin. Sci Am S 76:16 Jl 5 '13
Straight line, apparently, not always the shortest. II Sci Am 108:470 My 24 '13

Mathematics
Limitations of mathematical theory. W. G. Button. Eng Rec 68:518 N 8 '13
Review of mathematics with test questions. (Engineers' study course) Power 37:507-8 Ap 8 '13
See also Arithmetic; Calculating machines; Mechanics; Mensuration; Metric system; Surveying

Mathematics --Continued.**Formulas**

Formulas and their use; simple explanation of signs and symbols employed in mining calculations. *Colliery* 33:443-5 Mr '13

Study and teaching

Teaching mathematics to engineering students. *W. Whited. Eng N* 70:538-9 S 18 '13

Matter

Matter and electricity. *Elec W* 61:330 F 15 '13

Relation of matter to electricity. A. W. Goodspeed. *J Fr Inst* 176:303-18 S '13

See also Atomic theory; Atoms; Elasticity; Force and energy; Molecules; Radioactivity; Transmutation of elements

Mattresses

His mattress a life raft. *H Sci Am* 108:90 Ja 25 '13

Mausoleums. See Tombs**Mauvages tunnel**

Relining the Mauvages tunnel on the Marne ship canal. F. B. Mann. plan *Eng Rec* 67:203-4 F 22 '13

Maxwell motor company, Newcastle, Ind.

Maxwell uses one factory for spare parts for 244 models. *Automobile* 29:1098-1100 D 11 '13

Measurement

See Area measurement; Calculating; Electric measurement; Gages; Gas meters; Liquid meters; Meters; Micrometers; Planimeters; Slide rule; Stream measurement; Surveying; Temperature—Measurement; Water measurement; Water meters; Weights and measures

Measurement, Electric. See Electric measurement**Measurement of temperature. See** Calorimeters and calorimetry; Pyrometers and pyrometry; Temperature—Measurement; Thermometers**Measures. See Mensuration; Weights and measures****Meat**

Frozen meat industry of New Zealand. A. M. Wright. *Sci Am* 87:211 O 4 '13

See also Meat extracts; Meat markets; Packing industry

Meat, Artificial

Artificial meat. *Sci Am* 109:253 O 4 '13

Meat extracts

Bouillon cubes: their contents and food values compared with meat extracts and home-made preparations of meat. F. C. Cook. *H U S Agric Bul* 27:1-7 '13

Meat markets

Electrical refrigeration for the butcher. R. L. Lloyd. *H Elec R & W Elec'n* 62:83-8 Ja 11 '13

Mechanical draft

Balanced draft system of furnace regulation. *H plan Power* 37:181-8 F 11 '13

Control of furnace draft. E. Brown. *Power* 38:465-6 S 30 '13

Diesel electrically controlled draft regulation. *H Power* 37:247-8 F 18 '13

Prat system of induced draft. L. Prat. *plan Power* 3:371-2 Mr 18 '13

See also Boilers; Draft; Fans, Mechanical; Smoke prevention

Mechanical drawing

Free-hand sketching in mechanical work. A. A. Dowd. *H Mach* 19:673-6 My '13

Shading in mechanical drawing. T. W. Johnson. *diag Am Mach* 38:865-7 My 22 '13; Same. *Am Soc M E J* 35:593-600 Ap '13; Discussion. 35:1261-8 Ag '13

Sketching of mechanism in designing. F. W. Harris. *Sci Am* S 75:179-80 Mr 22 '13

See also Architectural drawing; Drawing room practice; Drawing instruments; Graphic statics; Lettering; Machinery—Design; Pattern making

Mechanical engineering

American society of mechanical engineers' 34th annual meeting. *Iron Tr R* 53:1081-7 D 11 '13

Spring meeting of Am. Soc. M. E., Baltimore and Annapolis, May 20-23, 1913. *Iron Tr R* 52:1235-8 My 29 '13

See also Boilers; Electric engineering; Engineering; Engines; Fuel; Hydraulic engineering; Locomotives; Lubrication and lubricants; Machine shop practice; Machine tools; Machinery; Marine engineering; Mechanical draft; Mechanics; Power plants; Power transmission; Steam engines; also American society of mechanical engineers

Mechanical engineers

Proposed code of ethics for mechanical engineers. *Eng Rec* 67:95-6 Ja 25 '13

Mechanical engineers, American society of. See American society of mechanical engineers**Mechanical fans. See Fans, Mechanical****Mechanical handling**

Cleveland electric illuminating co. ash handling plant. *H Iron Age* 91:426 F 13 '13
Device for loading ties. *H diag Ry Age* 55:1181-2 D 19 '13

Efficient foundry sand-handling plant installed in the Hart-Parr co.'s foundry. *H Foundry* 41:21-6 Ja '13

Foundry of J. I. Case threshing co. notable for transporting devices. *H plan Iron Age* 92:769-71 O 9 '13

Freight-handling equipment of New York dock company. *H plan Eng Rec* 67:432-3 Ap 19 '13; Same. *Ry & Eng R* 58:365-7 Ap 19 '13; Same. *Int Marine Eng* 18:204-6 My '13

Freight-handling machinery for increasing dock capacity, by New York dock co. *H Eng N* 69:914 My 1 '13

Handling cost reduced by tractors. *H Iron Age* 92:14-5 Jl 3 '13

Handling of material in an implement plant; mono-rail trolley system in Emerson-Birmingham co. works, Rockford, Ill. *H Iron Tr R* 52:1013-6 My 1 '13

Material handling plant in a scrap yard. *H Iron Age* 91:187-8 Ja 16 '13

Mechanical handling of coal for British locomotives. C. J. B. Cooke. plan *Ry & Eng R* 53:458-9 My 17 '13

Mechanical loader for motor trucks. *Sci Am* 109:76 Jl 26 '13

Methods of handling materials in shops. H. C. Spillman. *H Iron Age* 92:1272-3 D 4 '13

Motor-operated clam-shell bucket. *H Eng N* 70:168 Jl 24 '13

Possible economies in shop transportation. R. T. Kent. *diag Iron Age* 92:280-2 Ag 7 '13

Slings and hitches for handling machinery. J. Riddell. *H Eng N* 69:768-72 Ap 17 '13; Same. *Ind Eng* 13:155-60 Ap '13; Same cond. *Power* 37:561-4 Ap 22 '13; Same cond. *Eng & Min J* 95:1092-4 My 31 '13

Storing and handling of material of Maintenance department: seven papers. *Ry Age* 54:159-61 Ja 24 '13

Unloading car of bulk cement in one hour with one man. *H Concrete Cem* 3:147-8 S '13

Unloading earth from cars by sluicing. J. C. Lathrop. *Eng N* 70:609 S 25 '13

Wagon loaders for handling sand, stone and gravel. *H Munic Eng* 45:188 Ag '13

See also Ash handling; Coal handling; Conveying machinery; Dumping appliances; Freight handling; Grain handling; Lumber handling; Mail handling; Mine haulage; Ore handling; Rail handling; Telephage.

Mechanical models

Franklin Institute treasures. H. D. Jones. *H Sci Am* 108:473 My 24 '13

Model room tools and methods. F. B. Lucas. *diag Mach* 19:369-70 Ja '13

Simple methods in model-making: how soft wood and cardboard can be used. P. Collins. *H Sci Am* 109:65 Jl 26 '13

Mechanical movements

See also Pulleys

Mechanical stokers. See Stokers, Mechanical**Mechanical theory of life**

Dead matter that seems alive: synthetic ideas about life. B. C. Gruenberg. *H Sci Am* 109: 93 Ag 2 '13

Mechanical theory of life—Continued.
Vitalism and mechanism. *Sci Am* 109:82 Ag 2 '13

Mechanics
McAndrew's floating school. C. A. McAllister. *Int Marine Eng* 18:18-20 Ja '13
See also Aeronautics; Bridges—Load; Counterbalance weights; Elasticity; Fluids; Force and energy; Friction; Gases; Graphic statics; Hydraulics; Liquids; Machinery; Matter; Moments of inertia; Power; Pulleys; Rotating discs; Strength of materials; Torque

Mechanics, Applied
Automatic balancers. M. Leblanc. *Am Soc M E J* 35:893-6 My '13
Computing the shear on pins. W. C. Stripe. *Am Mach* 38:787-8 My 8 '13
Limitations of mathematical theory. W. G. Button. *Eng Rec* 68:518 N 8 '13
Mechanics of mining. R. T. Strohm. *Colliery* 33:448-9, 487-9, 566-8, 633-5, 713-5; 34:43-5, 114-6, 184-6, 246-7, 307-8 Mr-D '13 (to be cont)
On the realization of high angular speeds. M. Leblanc. *diag Am Soc M E J* 35:533-7 Mr '13
Punching and shearing values for steel. G. C. Anthony. *diag Am Mach* 38:857-9 My 22 '13
See also Machinery—Design; Mechanical engineering; Power transmission; Strains and stresses

Mechanics' liens
Some phases of the mechanics' lien law. W. H. Burquest. *Dom Eng* 62:14 Ja 4 '13

Medals
Willard Gibbs medal. *Met & Chem Eng* 11: 303-4 Je '13

Medical biography. See Physicians and surgeons

Medical inspection system of the Brooklyn rapid transit co. Ry & Eng R 53:708-9 Jl 26 '13

Medicine, Military
Humanitarian side of war: Red cross sanitary equipment for the field. W. J. Murray. *Il Sci Am S* 75:412-3 Je 28 '13

Medicine, Preventive
Prevention of disease versus cost of living. T. F. Harrington. *Sci Am S* 75:402-3 Je 28 '13
See also Hygiene; Public health; Sanitation

Medina temple, Chicago
Eastern architecture in the West. J. E. Murphy. *Il Arch Rec* 33:389-49 Ap '13

Megalithic monuments
Stone monuments: their relation to history and geography. J. W. Fewkes. *Il Sci Am S* 76:248-51, 264-5 O 18-25 '13

Melbourne, Australia
Railroads
Award of contract for electrification of Melbourne suburban system. map *Elec Ry J* 41:255 F 8 '13
Contract awarded for electrification of the Melbourne suburban railways. Ry & Eng R 53:120-1 F 8 '13
Electrical equipment for the Melbourne suburban railways. *Elec W* 61:315-6 F 8 '13
Electrification of Melbourne suburban railways. Ry & Eng R 53:59 Ja 18 '13

Melting points
Approximate melting points of some commercial copper alloys. H. W. Gillett and A. B. Norton. *Metal Ind n s* 11:514-7 D '13

Memory
Efficiency in learning: a practical result of experimental pedagogy. P. R. Radosavljevich. *Il Sci Am* 109:179-80 S 6 '13

Memphis, Tennessee
Bridges
Memphis cantilever bridge. plans *Eng N* 70: 930-2 N 6 '13
New Mississippi river bridge at Memphis. *diag Ry Age* 55:824-5 O 31 '13
New Mississippi river bridge at Memphis. *diags Eng Rec* 68:516-7 N 8 '13

Railroads
Illinois Central improvement. Il plan *Eng Rec* 68:720-2 D 27 '13

Mensuration
Circle. (*Engineers' study course*) Power 37:313-5 Mr 4 '13
Cylindrical segments and ellipses. (*Engineers' study course*) Il Power 37:468-70 Ap 1 '13
Lines and angles; the circle. (*Engineers' study course*) Power 37:202-3 F 11 '13
Polygons. (*Engineers' study course*) Power 37:275-7 F 25 '13
Pyramid, cone and frustum. (*Engineers' study course*) Il Power 37:354-6 Mr 11 '13
Quadrilaterals; triangles. (*Engineers' study course*) Power 37:238-40 F 18 '13
Spheres. (*Engineers' study course*) Il Power 37:392-4 Mr 18 '13
Spherical segment. (*Engineers' study course*) Il Power 37:430-2 Mr 25 '13
Table of feet reduced to decimals of a mile. J. G. Wishart. *Ry Age* 55:793 O 24 '13
See also Area measurement; Gages; Metric system; Surveying; Weights and measures

Mental arithmetic. See Arithmetic, Mental

Mental tests. See Ability tests

Mercantile marine. See Shipping

Mercer, Henry Chapman, 1866-
Personal architecture: house of H. C. Mercer, Doylestown, Pa. W. T. Taylor. *Il Arch Rec* 33:242-54 Mr '13

Merchant marine. See Shipping

Mercury
Concentration of cinnabar ores. G. V. Northey. *Il Eng & Min J* 96:783-4 O 25 '13
Quicksilver mining in 1912. *Eng & Min J* 95: 78-9 Ja 11 '13
Quicksilver operations in northern California. L. H. Eddy. *Eng & Min J* 96:828 N 1 '13

Mercury interrupters. See Interrupters

Mercury vapor lamps. See Electric lamps, Mercury vapor

Mershon, Ralph Davenport, 1868-
Portrait. *Eng N* 69:196a Ja 30 '13
Ralph D. Mershon, president of Am. Inst. E. E. G. A. Wardlaw. *Eng N* 69:200-2 Ja 30 '13

Metal coating
Industrial applications of spray method for producing metallic coatings. *Automobile* 28: 1302 Je 26 '13
Metal plating with the air brush: Schoop process. *Il Sci Am* 109:346 N 1 '13
New process for coating surfaces with metal: spray of finely divided metal. Dr. Lach. *Il Sci Am S* 76:108-9 Ag 16 '13
Recent advances in the spray process for the production of metallic coatings. M. U. Schoop. *Il Met & Chem Eng* 11:89-91 F '13
Schoop metal spray process. E. U. Schoop. *diag Eng M* 46:265-8 N '13
Schoop system of metal plating. *Il Mach* 19: 869 Jl '13
See also Electroplating; Plating

Metal coloring
Arsenic as an agent in metal coloring. E. Blasnett, Jr. *Metal Ind n s* 11:124-5 Mr '13
Artificial and genuine patina. *Sci Am S* 75: 319 My 17 '13
Coloring iron and steel products. E. F. Lake. *Mach* 19:778-9 Je '13
Coloring non-ferrous metals and alloys. E. F. Lake. *Mach* 20:27-30 S '13; Same. *Sci Am S* 76:266-7 O 25 '13
Coloring of extrusion metal. C. H. Proctor. *Metal Ind n s* 11:126 Mr '13
See also Bronzing; Gilding

Metal corrosion. See Corrosion and anti-corrosives

Metal cutting
Davis-Bournonville mechanically-guided metal-cutting torches. *Il Mach* 19:818-9 Je '13

Metal cutting—Continued.

- Diagram of machine tool operation. L. R. Pomeroy. Am Eng 87:248 My '13
- Improved machine-drill: heavy-feed Vauclain drill adapted to economical metal cutting. A. C. Vauclain and H. V. Wille. plans Eng M 44:622-4 Ja '13
- Manufacturing broaching machines and tools: description of system with details of production of necessary equipment at J. N. Lapointe co. II Iron Tr R 52:735-8 Mr 27 '13
- Melting metal under water. II Sci Am 108: 580 Je 28 '13
- Newton cold metal sawing machine. II Iron Tr R 53:410 S 4 '13
- Oxweld cutting and welding process. II Ry & Eng R 53:570-1 Je 14 '13
- Oxy-acetylene welding and cutting in European commercial and railway repair establishments. H. W. Jacobs. II Ry Age 54:475-8 Mr 14 '13
- Oxyacetylene welding and cutting operations. II Eng N 69:1062-3 My 22 '13
- Pantograph which draws on steel with a point of flame. H. H. Suplee. II Sci Am 109:300 O 18 '13
- Recent improvements in machine tools. Sci Am 108:180 F 22 '13
- Stellite as a cutting tool. D. T. Hamilton. II diag Mach 20:297-8 D '13
- Welding and cutting with oxygen and illuminating gas. Ry Age 55:196-7 Ag 1 '13
- See also* Cutting machinery; Steel cutting

Metal finishing

- Methods of finishing metal surfaces. E: K. Hammond. II Mach 19:852-4 Jl '13
- Progress made in scraping metal surfaces. L. J. Krom. II Metal Ind n s 11:521-2 D '13
- See also* Metal coloring; Metal protection

Metal laths

- Metal lath with integral furring strips. II Eng N 69:167 Ja 23 '13

Metal polishing. See Grinding and polishing

Metal protection

- Basic pigments and metal corrosion. Iron Age 92:342-3 Ag 14 '13
- Cumberland patent process for the protection of metals. Int Marine Eng 18:366-7 Ag '13
- Electrolytic prevention of boiler corrosion. Power 37:705 My 20 '13
- Influence of basic pigments in protecting metals from corrosion. H. A. Gardner. Eng Rec 68:93-4 Jl 26 '13
- Influence of basicity on protective value of paints for metals. Eng Rec 68:87 Jl 26 '13
- Preservation of iron and steel: tests to determine the best methods in painting. Iron Age 92:324-5 Ag 7 '13
- Preservation of metals for marine work. F. Lyon. Int Marine Eng 18:161-4 Ap '13; Same cond. Eng M 45:440-2 Je '13
- Preservative coatings. Iron Age 92:49 Jl 3 '13
- Protective coatings for railway bridge floors. A. W. Carpenter. Eng N 69:60-1 Ja 9 '13
- Rust inhibitive paint. Ry Age (Mech ed) 87:541 O '13
- Selecting and specifying protective coats for iron and steel. J. C. Smith. Eng M 44:334-9 D '12
- See also* Corrosion; Galvanizing; Painting, Structural

Metal spinning

- Improved method of metal spinning. II Mach 19:933-4 Ag '13

Metal surfaces. See Metal finishing

Metal tariff. See Metal trade

Metal testing. See Metals—Testing; Ore testing

Metal trade

- Billion-dollar metal output. Iron Tr R 53:875 N 13 '13
- Country's enormous junk heap. Foundry 41: 384-6 S '13
- General business conditions and the metal markets in 1912. Met & Chem Eng 11:1-8 Ja '13
- Iron and metal markets. See weekly numbers of the Iron age

Metal markets. See weekly numbers of the Engineering and mining journal

- Metal schedule in the House. Iron Tr R 52: 1084-6 My 8 '13
- Metal schedule of the Underwood tariff: dutiable list and free list. Iron Age 91:sup894a-894d Ap 10 '13
- Metal tariff. Eng & Min J 96:654-5 O 4 '13
- Metal, tin plate and sheet prices for 15 years, 1898-1912. Iron Age 91:48 Ja 2 '13
- New iron, steel and metal tariff rates. Iron Age 92:723-7 O 2 '13
- New tariff bill. Iron Age 91:896-7 Ap 10 '13
- Tariff hearings at Washington on metal schedule. Iron Age 91:280 Ja 23 '13
- Tariff on metals. Metal Ind n s 11:219-20 My '13
- Underwood-Simmons metal tariff schedule. Iron Age 91:1549a-1549d Je 26 '13
- Underwood-Simmons tariff bill in the Senate. Iron Age 92:136-7 Jl 17 '13
- See also* Copper industry and trade; Iron industry and trade; Scrap metal; Steel industry and trade

Metal trades association. See National metal trades association

Metal waste

- Benefit of melting over platinum clips and filings in your own factory. M. Adelstein. Metal Ind n s 11:424-5 O '13
- See also* Scrap metal

Metal work

- Evolution of flatware blanks. C. W. Cook. II Metal Ind n s 11:199-200 My '13
- Machining of aluminum and white metals. K. Deinhardt. Mach 19:970 Ag '13
- Methods of finishing metal surfaces. E: K. Hammond. II Mach 19:852-4 Jl '13
- Progress made in scraping metal surfaces. L. J. Krom. II Metal Ind n s 11:521-2 D '13
- See also* Brass founding; Bronze; Bronzes; Bushings; Dies; Hardware; Ironwork; Keys and keyways; Metal coloring; Metal laths; Pewter; Pickling (metals); Punching machinery; Sheet-metal work; Slotting machines; Solder and soldering; Tanks; Welding

Metal work, Artistic

- Importance of design in the development of the art metal industry. A. F. Saunders. II Metal Ind n s 11:15-6 Ja '13
- Influence of style on the art metal work of modern times. A. F. Saunders. II Metal Ind n s 11:332-3 Ag '13

Metal work, Plate. See Plate metal work

Metallic films. Production and properties of. Sci Am S 76:151 Mr 8 '13

Metallic furniture. See Furniture, Metallic

Metallography

- Condenser-tube corrosion. II Power 38:531-3 O 14 '13
- Crystalline growth of strained ferrite. A. Sauvageur. II Iron Age 91:258-60 Ja 23 '13
- Crystallization of steel through fatigue. F. Rogers. Iron Age 92:554-5 S 11 '13
- Grain growth in silicon steel. W. E. Rudder. II Am Inst Min E Bul 84:2805-22 D '13
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- Micrometry as applied to alloys. Met & Chem Eng 11:619-21 N '13
- Microscope in the iron and steel industry. A. Sauvageur. II Iron Tr R 52:1303-7 Je 5 '13; Same cond. Iron Age 91:1370-1 Je 5 '13
- Microscopic revelations of steel structures. E. F. Lake. II Mach 19:690-4 My '13

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Microstructure of German silver. O. F. Hudson. II Metal Ind n s 11:209-10, 253-4 My-Je '13

Microstructure of sintered iron-bearing materials. B. G. Klugh. II Am Inst Min E Bul 77:813-28 My '13

Notes on the metallography of refined copper. E. S. Bardwell. II Am Inst Min E Bul 79: 1429-41 Jl '13

Sulphide ores of copper: some results of microscopic study. L. C. Graton. II Am Inst Min E Bul 77:741-98 My '13; Discussion. 77:7.8-811 My '13

Use of the microscope in the study of metals. E. F. Cone. II Iron Age 92:840-2 O 16 '13

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Dominion of Canada ore dressing and metallurgical laboratory, Ottawa. Eng & Min J 95:1046 My 24 '13

Metallurgical laboratories. Eng & Min J 95: 1161-2 Je 7 '13

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Great Falls, Mont. reduction works. II Eng & Min J 96:677-8 O 11 '13

Hydrometallurgy. R. Chauvenet. Met & Chem Eng 11:486-91 S '13

Hydrometallurgy and chlorination: answer to Dr. Chauvenet. J. L. Malm. Met & Chem Eng 11:669 D '13

Hydrometallurgy—joys of its theory, woes of its practice. W. F. Bleecker. Met & Chem Eng 11:538-9 O '13

Magnetite in mattes and slags. E. W. Waller. Eng & Min J 95:213-4 Ja 25 '13

Metallurgical costs at the Homestake. Met & Chem Eng 11:50-1 Ja '13

Metallurgy of the Homestake ore. A. J. Clark and W. J. Sharwood. II map Eng & Min J 95:161-6, 215-9 Ja 18-25 '13

New desulphurizing method: sulphur removed by distillation into its elemental forms. W. A. Hall. Eng M 45:876-8 S '13

New factor in metal failures. E. A. Lewis. Metal Ind n s 11:7 Ja '13

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Notes on metallurgy in British Columbia in 1912. E. Jacobs. Met & Chem Eng 11:29-30 Ja '13

Precipitate melting at the New Belmont mill, Tonopah, Nev. A. H. Jones. II Eng & Min J 95:1197-8 Je 14 '13

Reclamation of non-ferrous metals at Westinghouse electric & mfg. co.'s plant, Pittsburgh. II Foundry 41:130-4 Ap '13

Relative importance of principles and practice in education. J. Douglas. Met & Chem Eng 11:377-80 Jl '13

Speiss as a precious metal collector. Eng & Min J 95:167-8 Ja 18 '13

Synopsis of recent chemical and metallurgical literature. See monthly numbers of Metallurgical and chemical engineering

Temperature of certain operations in the metallurgy of copper and lead. G. H. Clevenger. II diag Met & Chem Eng 11:447-9 Ag '13

Western metallurgical field. Met & Chem Eng 11:68-9 F '13

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American soc. for testing materials: papers on metals. Eng N 70:74-6 Jl 10 '13

Annual meeting of British institute of metals, London, 1913; abstracts of papers presented. Met & Chem Eng 11:179-80 Ap '13

Engineering materials. C. A. McAllister. Int Marine Eng 18:53-5 F '13

Hardness of metals. T. A. Eastick. II Sci Am S 75:277-8 My 3 '13

International atomic weights. Eng & Min J 95:190 Ja 18 '13

Metals in antiquity. Sci Am S 75:16 Ja 4 '13

Misuse and failure of metals and alloys. T. V. Hughes. Sci Am 108:174 F 22 '13

New factor in metal failures. E. A. Lewis. Sci Am S 76:96 Ag 9 '13

Non-ferrous metals. Iron Age 92:51-2 Jl 3 '13

Passivity of metals: symposium before the British Faraday society. Met & Chem Eng 11:671-83 D '13

Resistivity of a few metals through a wide range of temperature. E. F. Northrup and V. A. Suydam. J Fr Inst 175:153-61 F '13

Ultimate source of metals. B. Stevens. Am Inst Min E Bul 75:331-43 Mr '13

Use of ammonia in bringing metal into solution. C. D. King. Sci Am S 75:16 Ja 4 '13

World's production of principal metals. Eng & Min J 95:742-4 Ap 12 '13

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Germany's aeronautical weather bureau. Sci Am 108:262 Mr 22 '13

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International commission on agricultural meteorology. Sci Am 108:563 Je 21 '13

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Electrical energy meter. II plan Power 37: 256-7 F 25 '13

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Reducing power plant waste by metering. S. Rice. II plan Iron Tr R 53:1106-7 D 18 '13

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Metric system and the average man. Ind Eng 13:370 S '13

New international carat of two hundred milligrams. G: F: Kunz. Sci Am S 76:82-3, 98-9 Ag 9-16 '13

Simple approximate metric conversions. A. A. Cary. Power 37:217-9 F 18 '13

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Teaching from the child's point of view: a new science created by Prof. Meumann. P. R. Radosavljevich. por Sci Am 109:141 Ag 23 '13

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Business situation in Mexico. W: M. Benney and V. Gonzales. Am Ind 14:19-23 O '13

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Arches of Mexico: relics of early Spanish engineering. M. W. Hudson. II Sci Am 109: 28 Jl 12 '13

Engineer's stage journey through Arizona and Mexico in 1880. C. L. Annan. map Eng N 69:1128-30 My 29 '13

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Mines of Mexico. H. A. Megraw. II Eng M 46:37-45 O '13

Patience and cheap labor in Mexican mining. W: H. Yeandle. Eng & Min J 96:1127-8 D 13 '13

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Assault on the Lucky Tiger mine. Eng & Min J 96:890-1 My 3 '13

How Mexican rebels destroy railways and bridges. G. E. Weeks. II Sci Am 109:209-10 S 13 '13

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Miami copper company in 1912. J: P. Channing. Eng & Min J 95:59-60 Ja 11 '13

Report for 1912. Eng & Min J 95:763-4 Ap 12 '13

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Flood notes from the Miami valley. II map Eng N 69:924-31 My 1 '13

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India mica industry. A. F. Dixon. II Am Inst Min E Bul 77:859-77 My '13

Mining and treatment of feldspar and kaolin. A. S. Watts. II U S Bur Mines Bul 53: 1-160 '13

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Developments on Michigan iron ranges. P. B. McDonald. II Eng & Min J 96:335-9 Ag 23 '13

Michigan Central railroad

Operation of Michigan Central in 1912. Ry Age 54:659-60 Mr 21 '13

67th annual report, 1912. Ry Age 54:696-7 Mr 21 '13

Michigan master plumbers association

21st annual convention at Saginaw, Mar. 1913. Dom Eng 62:379-82 Mr 29 '13

Michigan smelting & refining co., Detroit, Mich.

Description of the development. II Metal Ind n s 11:1-6 Ja '13

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Micro-motion study by means of chronometer and moving picture machine. II Ind Eng 13: 1-4 Ja '13

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Early use of the microscope at iron and steel works. P. Kreuzpointner. Iron Age 92:35' Ag 14 '13

Hints for young microscopists. N. Barden. II Sci Am 108:435 My 10 '13

Improved metallurgical microscope. W. Tas-sin. II Met & Chem Eng 11:56-8 Ja '13

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Microscopy in economic geology. R: Beck. Eng & Min J 95:1087-9 My 31 '13

Modern microscopical optics: the limitations of the microscope. C. Metz. Sci Am S 75: 162-3 Mr 15 '13

Power of a microscope. C. W. Nieman. Sci Am 108:11 Ja 4 '13

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 Marine lighting equipment of the Panama canal. J. Pattison. diag Eng N 69:1057-9 My 22 '13

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 Centralized electrical control systems for Panama locks. II Eng Rec 68:730-1 D. 27 '13
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Operating-control system of the Panama canal locks. II diag Eng N 70:1323-9 D 25 '13
Tolls

Amend the Panama canal act. Sci Am 108: 82 Ja 25 '13
 Block unit system versus net tonnage measurement. Int Marine Eng 18:511-2 D '13
 Panama canal and free tolls to domestic American shipping. C. Depesee. Sci Am 108:113 F 1 '13
 Toll exemption for coastwise shipping. E. R. Johnson. Eng Rec 67:62-3 Ja 18 '13
 Tonnage rules for Panama canal tolls. Ry & Eng R 53:1099-100 N 29 '13

Panama Canal Zone

Visiting Panama in the rainy season. Eng Rec 67:sup 47 My 3 '13
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 Panama water-supply and purification system. A. T. Nabstdt. II plan Eng N 70:650-5 O 2 '13
Panama Pacific International exposition, 1915.
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Honduras link of the Pan-American railroad. E. Perry. Eng M 46:333-40 D '13

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Second annual banquet at Tamaqua, October 18. Colliery 34:286-8 D '13

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Analysis of glare from paper. M. Luckless. II Sci Am S 76:170 S 13 '13

India paper and its uses. W. F. Smith. Sci Am 109:275 O 4 '13

Interesting uses of paper. Sci Am 109:266 O 4 '13

Origin of paper. Inland Ptr 51:442 Je '13

Pulp and paper and other products from waste resinous woods. F. P. Veitch and J. L. Merrill. U S Bur Chem Bul 159:1-28 '13

Relations of paper, type and ink. E. M. Kenting. II Inland Ptr 50:683-7 F '13

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Testing

How the government tests paper: the methods and machines of the Bureau of standards. H. T. Wade. II Sci Am 109:260 O 4 '13

Paper making and trade

How trees are converted into paper. T. J. Keenan. II Sci Am 109:256-8 O 4 '13

Manufacture of Swedish filter paper. G. Fornstedt. Sci Am S 76:219 O 4 '13

New American-Ball paper-mill engine. II Ind Eng 13:222-4 My '13; Power 37:629-30 My 6 '13; Sci Am S 75:284-5 My 3 '13

Octopus of the spruce forest. W. H. Kempfer. II Sci Am S 76:216-7 O 4 '13

Technology of the paper industry: the influence of soda consumption in boiling upon the yield of pulp produced. C. Beadle and H. P. Stevens. Sci Am S 76:214-5 O 4 '13

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Grinder room ventilation for paper mills. A. Ritter. plans Dom Eng 62:66-7 Ja 18 '13

Para, Brazil

Port facilities. II Eng Rec 67:209 F 22 '13

Parachutes

Aero-parachute. Levavasseur and Gastambide. Am Soc M E J 35:1285-7 Ag '13

Parachute leap from an aeroplane. II Sci Am 109:229 S 20 '13

Safety parachute for airmen. II Sci Am 109: 520 Je 7 '13

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Paraffin as a fuel. diag Automobile 28:950-1 My 1 '13

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Ultra-microscopic parasites. Sci Am S 75: 80 F 1 '13 .

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Parcel post

C. O. D. parcel-post service. Inland Ptr 51: 259 My '13

Maximum parcel. J. Becker. II Sci Am 108: 451 My 17 '13

Maximum parcel. D. W. Taylor. II Sci Am 109:51 Jl 19 '13

New mail carrying railway: a parcels post tunnel. II Sci Am 109:263 O 4 '13

Parcel post and compensation for carrying mails. Ry & Eng R 53:741 Ag 2 '13

Parcel post and the printer. Inland Ptr 51: 66 Ap '13

Printers and parcels post. G. D. Crain, jr. Inland Ptr 51:541-2 Jl '13

Reforms needed in parcel-post administration. Eng N 70:770-1 O 16 '13

Shipment of 240 20-lb. boxes of fresh fruit by parcel post. Ry Age 55:420 S 5 '13

Simple parcel post wanted. Sci Am 108:574 Je 28 '13

Supply houses praise parcels post. map Dom Eng 62:16-7 Ja 11 '13

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Electric hotel in Paris. J. Boyer. II Sci Am 109:345 N 1 '13

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Park drives and boulevards in Chicago. L. White. II Munic Eng 44:89-95 F '13

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Effect of parks and playgrounds on real estate valuation. Munic Eng 44:148-4 F '13

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Record of Pasadena's municipal plant. Power 38:626-7 O 28 '13

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Cameron septic tank decision in Knoxville case. Eng Rec 67:140 F 1 '13

Cleveland chamber of commerce and the Oldfield bill. Sci Am 108:343 Ap 12 '13

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Compulsory licenses under United States patents. Sci Am 109:87 Ag 2 '13

Decision in the Wright aeroplane patent case. Sci Am 108:273 Mr 22 '13

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Inventors' guild and the Oldfield bill. Sci Am 109:126 Ag 16 '13

Legalized blackmail—Kahn bill. L. H. Baekeland. Elec W 62:1146-7 D 6 '13

Manufacturers and the Kahn law. Iron Age 92:1240 N 27 '13

Minority report of the House patent committee. Elec W 61:660 Mr 29 '13

Minority views on the Oldfield bill. Sci Am 108:238 Mr 15 '13

Mis-statements in the Oldfield report. Sci Am 108:82 Ja 26 '13

Outcome of the carborundum patent suit between Electric smelting & aluminum co. and the Carborundum co. Met & Chem Eng 11:203-6 Ap '13

Patent law rulings and the Sherman act. Iron Age 91:978 Ap 17 '13

Patent-law situation discussed in Chicago. Elec W 61:1028 My 17 '13

Patent situation. W: D. Weaver. Elec W 61: 4-6 Ja 4 '13

Pirating of commercial designs and why a new law is needed to protect such designs. E. W. Bradford. Inland Ptr 51:903-4 S '13

Preliminary report to the Inventors' guild: the guild's relation to patent practise. F. L. O. Wadsworth. Sci Am S 75:148-7, 166, 178-9 Mr 8-22 '13

Present condition of the patent law. E. J. Prindle. Am Soc M E J 35:601-17 Ap '13; Discussion. 35:1244-6 Ag '13

Price maintenance and the Supreme court decision. Sci Am 108:508 Je 7 '13

Radical reforms in the conduct of patent litigation. G. H. Montague. Eng N 69:958-9 My 8 '13

Ratification of the convention of 1911 of the International union for the protection of industrial property. Sci Am 108:436 My 10 '13

Recent assaults upon the patent system: what they mean to manufacturers. G. H. Montague. Sci Am 108:491 My 31 '13; Same. Am Ind 13:23 Je '13; Same. Eng M 45: 592-3 Jl '13

Reform of procedure in patent suits by the new rules. D. Smith. Met & Chem Eng 11: 187-90 Ap '13

Remarkable offer by the United States government to owners of patents and copyrights. Eng N 70:934-5 N 6 '13

Report of the Economy and efficiency commission on the patent office. L. H. Baekeland. Elec W 61:969-73 My 10 '13

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Resolution of Inventors' guild on patent reform. Elec W 62:270-1 Ag 9 '13

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Supreme court of the United States on price maintenance. Sci Am 108:545 Je 14 '13

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Waltham-Keene decision. G: C. Dean. Automobile 28:610 Mr 6 '13

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Annual report of the commissioner of patents, 1911-1912. Sci Am 108:12-3 Ja 4 '13

Annual report of the commissioner of patents, 1912-1913. Sci Am 109:282 O 11 '13

Benefits of our patent system. J. B. Fay. Sci Am S 75:230-1 Ap 12 '13

Biological inventions: patenting life processes for industrial uses. Sci Am S 76:226-7 O 11 '13

Certain unrecognized patent rights. F. D. Withrow. Sci Am 108:365 Ap 19 '13

Chemical and metallurgical patents. See monthly numbers of Metallurgical and chemical engineering

Comments on the report of the investigation of the United States patent office. L. H. Baekeland. Met & Chem Eng 11:249-53 My '13

Common errors as to the value of a patent. S. H. Bunnell. Iron Age 92:1310-1 D 4 '13

Patents—Continued.

Considerations on the nature of intellectual property: observations made thirty-five years ago. N. S. Shaler. Sci Am S 75: 46-7 Ja 18 '13

Copper-clad steel suit. P. H. W. Smith. Elec W 62:244 Ag 2 '13

Criterion of patentable invention. S. C. Barnes. Sci Am S 75:413-4 Je 28 '13

Digest of electrochemical U. S. patents. See monthly numbers of Metallurgical and chemical engineering

Employer's right to employee's invention. A. F. Jobke. Elec W 61:152 Ja 18 '13

Expired patents. Sci Am 108:457 My 17 '13

F. P. Fish on patents and industrial conditions. Elec W 62:571-3 S 20 '13

Goodwill, patents, trade-marks, copyrights and franchises. P. J. Esquerre. J Account 16:27-9 Ja '13

How patented inventions have increased the national wealth. Sci Am 108:414 My 3 '13

In defense of brain property. Sci Am 108:62 Ja 18 '13

Letters patent in relation to modern industrial conditions. F. P. Fish. Sci Am S 76:201-3, 222-4 S 27-O 4 '13

Minority views on the Oldfield bill. Sci Am 108:238 Mr 16 '13

Nature of the patent monopoly. J. H. Rusby. Sci Am 108:243 Mr 15 '13

Negative-head patent decision in case of mechanical filters at Harrisburg. Eng Rec 68:287-8 S 13 '13

Patent experting—a new field for engineers. D. Smith. Mach 19:343-4 Ja '13

Patent situation. W. D. Weaver. Elec W 61: 4-6 Ja 4 '13

Patents and modern industrial conditions: the stimulus of patent protection. F. P. Fish. Sci Am 109:181 S 6 '13; Same cond. Iron Age 92:742-3 O 2 '13

Patents relating to concrete construction. Eng Rec 67:69-70 Ja 18 '13

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Plea for the patentee. W. E. Emory. Sci Am 108:355 Ap 19 '13

Prices and the ultimate consumer. Sci Am 109:7 Jl 5 '13

Protecting towns and cities from blackmailing patent litigation. Eng N 70:617 S 25 '13

Protection of intellectual property in relation to chemical industry. L. H. Baekeland. Met & Chem Eng 11:31-6 Ja '13

Weekly record of electrical patents. See weekly numbers of Electrical world

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Detroit machine for testing paving. J. C. McCabe. Eng N 69:585-6 Mr 20 '13

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Mile of test pavements on Second avenue New York. H. W. Durham. Eng Rec 67: 213 F 22 '13

Tests of concrete and brick pavements with the determinator at the American road Congress in Detroit. II Eng Rec 68:457-8 O 25 '13

Pavements
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Construction of surfaces with bituminous materials: a study of the causes of some failures encountered. A. H. Blanchard. Concrete Cem 1:76-7 D '12; Same. Sci Am S 75:38-9 Ja 18 '13

Economy of motor trucks in paving work. II Eng Rec 68:205 Ag 23 '13

Effects of flood on pavements and sewers. G. C. Cummin. II Eng Rec 68:357-8 S 27 '13

Form of pavement surface at street intersection. Munic Eng 45:446-8 N '13

General instructions to inspectors of street paving by Bureau of highways of Borough of Manhattan, New York city. Eng N 69: 1114-5 My 29 '13

Mineral rubber paving in St. Joseph, Mo. II Munic Eng 44:55-6 Ja '13

Newark, N. J.—recommendations for Broad street paving. Eng Rec 67:345-6 Mr 29 '13

Pavements in Peoria, Ill. J. B. Jeffries. II Munic Eng 44:437-9 My '13

Paving and road matters in England. C. O. Burge. Eng Rec 68:196 Ag 16 '13

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T-rail in paved streets. R. C. Cram. II Elec Ry J 42:368-73 S 6 '13

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Maintenance and treatment of smooth pavements. *Eng Rec* 67:414 Ap 12 '13

Maintenance treatment of smooth pavements in St. Louis. W. L. Hempelmann. *Eng N* 69:349 F 20 '13

Repair and maintenance of various kinds of pavement, Chicago. *Eng N* 70:1137-8 D 4 '13

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Asphalt paving cements and road binders. J. W. Howard. *Eng Rec* 68:345-7 S 27 '13

Asphalt paving cements and road binders. H. B. Pullar. *Eng Rec* 68:534 N 8 '13

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Asphaltic or bituminous concrete pavements. C. A. Mullen. *Munic Eng* 44:334-5 Ap '13

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Creeping of an asphalt-block pavement. C. S. Rindsfoos. *Eng N* 70:1315 D 25 '13

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Brick pavements in Baltimore. R. K. Compton. *Eng Rec* 68:436 O 18 '13

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Concrete pavement failures. *Munic Eng* 44: 537-40 Je '13

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Concrete paving at Texarkana, Ark. *Elec Ry J* 42:490 S 27 '13

Concrete paving between car tracks in Birmingham, Ala. *Eng Rec* 67:288 Mr 1 '13; Same. *Elec Ry J* 41:514 Mr 15 '13

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Essentials of reinforced concrete paving—the experience in Fond-du-Lac. J. S. McCullough. *Concrete Cem* 3:111 S '13

Four-inch concrete pavement slab tested. *Concrete Cem* 2:220 My '13

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Investigation of concrete pavement in Chicago. C. M. Powell; P. E. Green. *Eng N* 69:430-4 F 27 '13

Methods of repairing cement-concrete pavements. *Eng Rec* 67:181 F 1 '13

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One- and two-course work in concrete paving. *Concrete Cem* 2:236 My '13

Plain concrete paving used in Kansas City. Mo. C. R. Mandigo. *Eng N* 70:112-5 Jl 17 '13

Plain concrete paving—what has been learned from Mason City work. F. P. Wilson. *Concrete Cem* 3:111-2 S '13

Reinforced concrete pavements in St. Johns, Hamtramck, Port Huron and Rockville. *Munic Eng* 44:574-5 Je '13

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Tests of concrete and brick pavements with the determinator at the American road Congress in Detroit. *Eng Rec* 68:457-8 O 25 '13

Thomas reinforced concrete pavement in Detroit. N. H. Beasley. *Munic Eng* 44:460-1 My '13

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Granite-block pavement in navy yard at Brooklyn. *Il Eng Rec* 68:181-2 Ag 16 '13

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Creosoted block paving in Chicago. J: E. Ericson. *Il plan* *Munic Eng* 44:17-20 Ja '13

Creosoted wood block in Atlanta, Ga. R. M. Clayton. *Il Munic Eng* 44:39-40 Ja '13

Creosoted wood block in Cincinnati. H. M. Waite. *Munic Eng* 45:157-9 Ag '13

Creosoted wood block in Detroit. J. J. Haarer. *Il Munic Eng* 44:234-6 Mr '13

Creosoted wood block pavement in Duluth. J: Wilson. *Il Munic Eng* 45:181-3 N '13

Creosoted wood block pavement in Longview, Texas. P. E. Green. *Munic Eng* 45:363-4 O '13

Creosoted wood block pavement in New York. *Il Munic Eng* 44:244-6 Mr '13

Creosoted wood block pavement laid by city day labor in Minneapolis. E. R. Dutton. *Eng N* 69:27-8 Ja 2 '13

Creosoted wood block pavements in Boston. J. H. Sullivan. *Il Munic Eng* 45:256-8 S '13

Creosoted wood block pavements in Springfield, Mass., and New Haven, Conn. *Munic Eng* 45:544-5 D '13

European creosote specifications for paving block for city streets. E. A. Sterling. *Eng Rec* 67:495-6 My 3 '13

Heaving of wood-block pavement under extreme climatic conditions, Longview, Tex. *Il Eng N* 70:1134-7 D 4 '13

Louisville (Ky.) creosoted wood block. D. R. Lyman. *Munic Eng* 44:540-2 Je '13

Merits of different woods for street paving. H. G. Davis. *Eng N* 69:302 F 18 '13

Oak-keyed Belgian block pavement. *Il diag* *Eng N* 70:802-3 S 25 '13

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Wood block on steepgrades. *Eng Rec* 68:586-7 N 22 '13

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Wood-block paving practice; abstracts of 3 papers read before annual convention of Am. wood preservers' assn. H. G. Davis; H. S. Loud; H. L. Collier. *Eng Rec* 67:133-4 F 1 '13

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St. Louis united railways company Annual report, 1912. Elec Ry J 41:393-4 Mr 1 '13
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Proposed water-supply and sewage disposal legislation in Minnesota. Eng N 69:633-4 Mr 27 '13

Residential sewage-disposal installations: individual sub-soil irrigation plants. W. H. Booker. plans Eng M 44:116-8 O '13

Revolving drum screens for sewage. plans Eng Rec 67:470-1 Ap 26 '13

River dilution for sewage effluent at Lethbridge, Ont. Eng Rec 67:56 Ja 11 '13

Rolling mill cinder for sewage filters. H. L. Humphrey. Munic Eng 44:122-3 F '13

Rules governing the submission of sewerage and water-supply plants to the New Jersey state board of health. Eng N 70:548-50 S 18 '13

Separate and combined sewers in relation to sewage disposal. J. H. Gregory. Eng N 70:875-6 O 30 '13; Same cond. Eng Rec 68:442-3 O 18 '13

Septic tanks and sewage disposal. II Dom Eng 65:330-4 D 13 '13

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Sewage disinfection in Philadelphia. W. L. Stevenson. II plan Eng Rec 68:256-7 S 6 '13

Sewage disposal and water supply at Duluth, Minn. J. Wilson. Munic Eng 44:347-8 Ap '13

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Sewage disposal investigations at Cleveland. R. W. Pratt. II plans Eng N 69:287-94 F 13 '13

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Sewage pollution of Lake Michigan from the Calumet district. Eng N 69:474 Mr 6 '13

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Sewage purification. F. H. Tibbetts. II diag Munic Eng 44:512-6 Je '13

Sewage purification at Atlanta, Ga. II Munic Eng 45:224-30 S '13

Sewage treatment at State hospital for the insane, Norristown, Pa. P. E. Mebus. plan Eng Rec 67:531-2 My 10 '13

Sewage treatment plant for the Julietta insane hospital, Indiana. C. Brossmann. II plans Eng N 69:902-4 My 1 '13

Sewage treatment plant for Waverly Hill anti-tuberculosis sanatorium. P. H. Norcross. II plans Eng N 70:558-60 S 18 '13

Sewage-treatment studies at Akron, Ohio. II plans Eng Rec 67:387-90 Ap 5 '13

Sewage-treatment works with motor-driven reversible distributor, Springfield, Mo. plan Eng N 70:1112-3 D 4 '13

Shellfish conservation and sewage disposal. G. A. Johnson. Eng Rec 68:294 S 13 '13

Springfield, Mo. sewage disposal plant. II Munic Eng 45:459-63 N '13

Studies at the Lawrence experiment station upon the disposal of sewage sludge in deep tanks. H. W. Clark and G. O. Adams. Eng N 70:13-5 Jl 3 '13

Studies of river bottoms at Philadelphia in relation to sewage disposal. Eng N 70:918-9 N 6 '13

Suggestions for improvements on bacterial filtering beds for the purification of sewage. W. Thum. Munic Eng 45:539 D '13

Temporary hypochlorite plant for treating the sewage of Norristown, Pa. S. C. Corson. plan Eng N 69:558 Mr 20 '13

Travelers for sewage distribution at Springfield, Mo. A. Potter. II Eng Rec 68:440-1 O 18 '13

Treatment of sewage discharged into tidal waters. Eng N 70:401 Ag 28 '13

Uniformity in sewer plans: New Jersey state board of health's new regulations. Eng Rec 68:273-4 S 6 '13

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Sewage-treatment studies at Akron, Ohio. II plans Eng Rec 67:387-90 Ap 5 '13

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Concrete sewer-pipe tests in Kansas City. Mo. E. S. Wallace. II Eng N 69:568-9 Mr 20 '13

Sewer pipe in large sizes. L. G. Blackmer. Munic Eng 44:461-2 My '13

Specifications for drain tile and sewer pipe: committee report of Iowa state drainage assn. Eng Rec 67:235-6 Mr 1 '13

Specifications for drain tile, for sewer tile and for pipe laying. A. Marston and A. O. Adams. diags Concrete Cem 3:201-4 N '13

Strength of drain tile and sewer pipe. Eng Rec 68:46-7 Jl 12 '13

Testing drain tile and sewer pipe. M. Schuyler. Eng Rec 68:695-7 D 20 '13

Vitrified sewer pipe tests. Munic Eng 45:488 N '13

Watertight joints for pipe sewers. P. F. Miller. diag Munic Eng 44:848-51 Ap '13

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Cincinnati sewerage investigations and surveys. J. E. Root. Eng Rec 67:347-8 Mr 29 '13

Collapse of sewer in St. Louis. II Eng Rec 68:417 O 11 '13

Committee reports of Am. public health association on sewerage and sewage disposal. Eng N 70:759-60 O 16 '13

Concrete sewer construction in Louisville. J. H. Kimball. II Munic Eng 44:20-3 Ja '13

Construction of brick storm sewer at Cedar Rapids. II Eng Rec 68:304-5 S 13 '13

Construction of tile pipe sewers in Chicago. H. E. Hudson. II Munic Eng 45:20-4 Jl '13

Covering of Jones' Falls, Baltimore, Md. II map Eng N 70:2-8 Jl 3 '13

Difficult sewer construction at West Liberty, Iowa. C. P. Chase. II Eng Rec 67:303-4 Mr 15 '13

Disastrous sewer explosion in Pittsburgh. II Eng N 70:1157-9 D 4 '13

Effects of flood on pavements and sewers. G. C. Cummin. II Eng Rec 68:357-8 S 27 '13

Great Vancouver joint sewerage scheme: organizing and financing project for draining 55,600 acres, with data on rainfall and float tests. map Eng Rec 68:472-4 O 25 '13

Hydraulic comparison of equivalent egg-shaped and circular sewers. R. S. Beard and O. L. Eltinge. Eng N 70:252 Ag 7 '13

Instructions for subsurface survey of Cincinnati. Eng N 70:1080-3 N 27 '13

Launching a submerged sewer outfall at Ocean Grove, N. J. M. R. Pugh. II Eng Rec 68:279 S 6 '13

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Making assessments to meet the cost of constructing sewers and drains. *Munic Eng* 45:536-7 D '13

New Jersey requirements for sewerage and water supply plans. *Munic Eng* 45:355-8 O '13

Outfall sewer of corrugated iron pipe and measurements of its internal friction. *El Paso, Tex. Eng N* 69:774-5 Ap 17 '13

Passaic valley sewer. *Il map Sci Am* 109: 320-1 O 25 '13

Practical hints on sewer construction. *W. W. Bridgen. Eng Rec* 67:239-40 Mr 1 '13

Railway sewers and drains. *Ry & Eng R* 53:1196-9 D 27 '13

Rehabilitation of Hoboken, N. J. sewerage system. *Il plans Eng Rec* 67:221-2 F 22 '13

Rules governing the submission of sewerage and water-supply plans to the New Jersey state board of health. *Eng N* 70:548-50 S 18 '13

Separate and combined sewers in relation to sewage disposal. *J: H. Gregory. Eng N* 70:875-6 O 30 '13; *Same cond. Eng Rec* 68:442-3 O 18 '13

Sewage ejectors in Grand Central terminal. *J. Graham. plans Dom Eng* 63:180-1 My 17 '13

Sewer building hints. *Eng Rec* 67:227 Mr 1 '13

Sewer construction in quicksand. *Eng N* 70: 1027-8 N 20 '13

Sewer siphons under New York subway. *T. L. Wilson. Il plan Munic Eng* 44: 392-8 My '13

Sewers and drains. *Ry Age* 55:786 O 24 '13

Sewers and plumbing for the Panama show. *Dom Eng* 68:171 N 8 '13

Sinking a sewage pump well in silt in El Paso, Texas. *Il Eng Rec* 67:664 Je 14 '13

Specifications for drain tile and sewer pipe; committee report of Iowa state drainage assn. *Eng Rec* 67:235-6 Mr 1 '13

Steel forms for concrete construction: uses of forms on sewers, aqueducts and tunnels. *W. M. Venable. Il Concrete Cem* 2: 11-4 Ja '13

Subaqueous sewer construction, Brooklyn, N. Y. *Il plans Eng N* 70:1064-70 N 27 '13

Suggested simplification for the value of C in Kutter's formula and a sewer discharge diagram. *A. Boyd. Eng N* 70:316 Ag 14 '13

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Uniformity in sewer plans: New Jersey state board of health's new regulations. *Eng Rec* 68:273-4 S 6 '13

Water-proofing sewers. *W. W. Dixon. Munic Eng* 44:276 Mr '13

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Deep shaft development at Placerville, California. *L. H. Eddy. Eng & Min J* 96:1067-8 D 6 '13

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Shaft sinking at the Indiana mine. *C. T. Rice. diag Eng & Min J* 96:509-11 Mr 8 '13

Shaft sinking cementation process. *G: S. Rice. diag Ry & Eng R* 53:827 Ag 30 '13

Shaft-sinking methods at Butte. *H. S. Monroe. Eng & Min J* 96:389-90 Ag 30 '13

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Ship construction treated from a structural engineering standpoint. J. E. Steele. Int Marine Eng 18:385-9 S '13

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Experiment in smelting titaniferous magnetite. L. O. Kellogg. Eng & Min J 96:604 S 27 '13

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Ernest Solvay, soda king. por Sci Am S 76: 364 D 6 '13

Soot
Influence of soot on boiler economy. H. D. Fisher. Power 38:816-7 D 9 '13
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Sorting belts. See Ore treatment

Soule, Frank, 1845-1913
Sketch. por Eng N 69:788-9 Ap 17 '13

Sound
Photographing sound: a fine demonstration of wave motion. A. L. Foley and W. H. Souder. II Sci Am S 75:108-11 F 15 '13
Seeing sound: snap shots of waves traveling at 750 miles per hour. II Sci Am 108:152 F 15 '13
See also Acoustics, Architectural; Phonograph; Radiation

South America
Construction conditions in South America. W. E. Wagner. II Concrete Cem 3:122-4 S '13

Southern Pacific railroad
Condition of Southern Pacific as gathered from its annual report. map Ry Age 54: 378-80 F 28 '13
Electrification of Southern Pacific mountain division. Ry & Eng R 53:939-40 O 4 '13
Southern Pacific-Union Pacific dissolution. See Union Pacific railroad
Study of electrification on the Southern Pacific. Elec Ry J 42:424 S 13 '13
28th annual report. Ry Age 54:413-8 F 28 '13

Southern railway
19th annual report for year ended June 30, 1913. Ry Age 55:729-32 O 17 '13
Revenues and expenses. map Ry Age 55:692-4 O 17 '13

Southern supply and machinery dealers association
Indianapolis meeting, April, 1913. Iron Age 91:350-1, 971-3 Ap 17 '13

Southwestern electrical & gas association
9th annual convention, Galveston, May, 1913: abstracts of papers. Elec Ry J 41:963-5, 1019-21 My 31, Je 7 '13
9th annual convention, Galveston, May, 1913: abstracts of papers. Elec W 61:1131-2, 1210-1 My 31-Je 7 '13

Souvenir booklets
Souvenir booklet. Inland Ptr 51:288 My '13

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Spanners
Use and abuse of spanners. Automobile 29: 426 S 4 '13

Spark gap
Discussion on group IV papers (Miscellaneous subjects relating to rating). (See Proceedings for February, 1913) Am Inst E E Pro 32:2074-2121 N '13
Sphere spark gap. S. W. Farnsworth and C. L. Fortescue. diag Am Inst E E Pro 32:300-5 F '13

Spark plugs
New spark plugs. II Automobile 28:360-3 Ja 30 '13

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Sparks
Grinding wheel sparks: how they indicate the character of steel. R. G. Williams. II Sci Am S 75:292-3 My 10 '13

Spaulding dam
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Spaulding dam. H. C. Vensano. II map plan Eng N 70:1163-6 D 11 '13

Specific gravity
Moisture slide rule. C. G. Barth, jr. II Eng & Min J 95:1149 Je 7 '13

Specifications
American soc. for testing materials, 16th annual meeting Atlantic City, June, 1913. Elec Ry J 42:32 Jl 5 '13
American soc. for testing materials, 16th annual meeting; committee reports and specifications. Eng N 70:37-40 Jl 3 '13
Application of specifications. R. W. Hunt. Eng N 70:20-1 Jl 3 '13
Effect of specifications and testing of material on the storekeeper's stock. Ry Age (Mech ed) 87:299-300 Je '13; Same cond. Ry Age 54:1137-8 My 23 '13
16th annual meeting of Am. soc. for testing materials: presidential address by Robert W. Hunt on the application of specifications. Iron Age 91:1669-71 Je 26 '13
Specifications must be used with judgment. R. W. Hunt. Iron Tr R 52:1434-5 Je 26 '13
See also Boilers—Specifications; Steel—Specifications

Spectacles
Eye-preserving glass for spectacles. W: Crookes. Sci Am S 76:414 D 27 '13
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Specter of Brocken. See Brocken, Specter of Spectra

Selective radiation from various substances. W. W. Coblenz. U S Bur Stand Bul 9:81-117 Mr 15 '13
See also Light; Radioactivity; Radiometers; Spectrum analysis

Absorption spectra
Evidence bearing on the solvate theory of solution. H. C. Jones. diag J Fr Inst 176:507-64 N '13

Spectroscope in organic chemistry. J. J. Bobble. II Sci Am S 76:8-7 Jl 5 '13

Spectrophotometers
Calibration of a Koenig-Martens polarization spectrophotometer. G. A. Shook. Met & Chem Eng 11:633-7 N '13

Quantitative spectrum analysis: spectrophotometers. G. A. Shook. Met & Chem Eng 11: 552-5 O '13

Spectrum analysis
Quantitative spectrum analysis. G. A. Shook. Met & Chem Eng 11:494-7, 552-5, 633-7 S-N '13

Quantitative spectrum analysis: colorimeters. G. A. Shook. diag Met & Chem Eng 11: 494-7 S '13
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Speech
Voices of the deaf: graphic records of speech. E. W. Scripture. II Sci Am S 76:60-1 Jl 26 '13

Speed control. See Electric motors—Speed control; Speed regulation; Speed variation

Speed indicators. See Tachometers

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Speed regulation
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Speed variation
Hydraulic speed-change gear or variable speed power transmission. II Eng N 69:1141-3 My 29 '13

Variable speed mechanism for milling machine table. II diag Mach 19:442 F '13

Speeders
Graham drill speeders. II diag Mach 19:811-3 Je '13

Speedometers
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Methods used in manufacturing the Jones speedometer. E. K. Hammond. II Mach 20: 43-7 S '13

1913 speedometers. II Automobile 28:358-9 Ja 30 '13

Speedways
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Brooklands (England) is world's fastest speedway. plan Automobile 28:1100 My 29 '13

Indianapolis, a city where pulling together has brought results. L. V. Spencer. II Automobile 28:1089-92 My 29 '13

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Spells
Spells as a precious metal collector. Eng & Min J 96:167-8 Ja 18 '13

Spelling
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Spelling reform
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Simplified spelling—a last word. F. H. Teall. Inland Ptr 50:557-8 Ja '13

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Spheres
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Spices
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Spillways
Siphon spillways to control water surface of reservoirs. W: R. Davis. II diag Concrete Cem 3:42-3 Jl 13

Spillways of the siphonic type. A. G. Hillberg. plans Eng Rec 67:488-90 My 3 '13
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Spitzbergen
Michigan mining interests in Spitzbergen. Eng & Min J 96:1008 N 29 '13

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Splicing. See Knots and splices

Spodumene
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Spokane, Washington
Bridges
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Latah creek bridge. J. F. Greene. II plan Eng Rec 67:312-4 Mr 22 '13; Same cond. II plan Eng N 69:614-7 Mr 27 '13

Railroads
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Terminal work of the C. M. & St. P. Ry. in Spokane. II plans Ry & Eng R 53:297-300, 339-40 Mr 29. Ap 12 '13

Streets
Street cleaning costs at Spokane, Wash., in 1912. S. A. Lexington. Eng N 69:404-5 F 27 '13

Spokane convention of engineering societies
First convention, 1913. Elec W 61:440-1 Mr 1 '13

Spontaneous combustion
Deterioration and spontaneous combustion of gas coal. P. Barker. Am Soc M E J 35: 279-84 F '13

Spontaneous heating of stored coal, its cause and prevention. Sci Am S 75:10-1 Ja 4 '13

Spontaneous ignition of coal. T. A. Peebles. Power 38:486-7 S 30 '13

Spoons
Evolution of flatware blanks. C. W. Cook. II Metal Ind n s 11:199-200 My '13

Spray process for the production of metallic coatings. M. U. Schoop. II Met & Chem Eng 11:89-91 F '13

Spring making machinery
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Springfield, Mass.
Architecture
Municipal buildings. Pell & Corbett architects. II Arch & Bldg 45:481-6 D '13

Hotels
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Water supply
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Sanitary affairs
Sewage disposal plant. II Munic Eng 45:459-63 N '13

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Springs

Increased flow of springs just before rains. S. P. Baird. Eng N 69:83 Ja 9 '13
Increased flow of springs just before rains. J. Berg. Eng N 69:321 F 13 '13
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Springs (mechanism)

Automatic torsion spring machine. diags Iron Age 91:1430 Je 12 '13
Design of automobile springs. D: Landau and A. Golden. Am Mach 38:148-50 Ja 23 '13
Methods employed in leaf spring manufacture. E. F. Lake. II Iron Age 91:701-5 Mr 20 '13

Reducing spring manufacture to a science; equipment of testing laboratory to facilitate the scientific manufacture of motor vehicle springs. II plan Iron Tr R 52:567-70 Mr 6 '13

Riedler on the action of springs. Automobile 28:846-7 Ap 17 '13

Slide-rule for spring calculations. J. Y. Dahlstrand. II Mach 19:856-8 Jl '13

Small spring troubles—their cause and cure. C. Doescher. Mach 20:311 D '13

Spiral spring design. J. S. V. Pleets. diag Ind Eng 13:405 S '13

Spring making and repairing. G. M. Stewart. Ry Age (Mech ed) 87:488-9 S '13

Tests for leaf springs and their treatment. E. F. Lake. II Mach 20:217-21 N '13

Tests of chrome-vanadium spring steel. II Ry & Eng R 53:108 F 1 '13

Vanadium springs in locomotive service. Ry & Eng R 53:324 Ap 5 '13

Winding piano wire tension springs; with data sheet supplement. Mach 19:591 Ap '13

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Sprinklers

Allowable heights and areas for factory buildings, with and without sprinklers. I. H. Woolson. Am Soc M E J 35:961-9 Je '13; Same cond. Iron Age 91:1399 Je 5 '13; Same cond. Eng M 45:733-4 Ag '13

Attitude toward automatic sprinklers. I. H. Woolson. Iron Age 91:1399 Je 5 '13

Automatic sprinkler equipment of loft buildings. E. P. Boone. II plan Arch & Bldg 45: 36-40 Ja '13

Automatic sprinkler protection for industrial plants. F. P. Walther. II Eng M 44:79-90 O '12

Automatic sprinklers as life savers. S. G. Koon. Eng N 70:373 Ag 21 '13; Same. Ind Eng 13:413-4 O '13

Fire disasters and automatic sprinklers. S. G. Koon. Eng Rec 68:336 S 20 '13

Fire prevention in metalliferous mines. G. J. Young. Eng M 44:604-6 Ja '13

Fire protection by automatic sprinklers. S. G. Koon. Sci Am 109:259 O 4 '13

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"Whip" and its mechanism: a ponderous melodrama. II Sci Am 108:89 Ja 26 '13

Stairways

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Emergency stairways for theatres and other buildings. F: Baumann. plan Arch & Bldg 45:110-1 Mr '13
Value of well-built stairways. Ind Eng 13: 414-5 O '13

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Step form making for economical work. II Concrete Cem 2:253-4 My '13

Stamp mills

City Deep mill on the Rand, South Africa, battery foundation. plans Eng & Min J 95: 951-2 My 10 '13

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Notes on the Hardenberg mill. L: H. Eddy. Eng & Min J 95:502 Mr 8 '13

Stamp battery water supply. plan Eng & Min J 95:473-4 Mr 1 '13

Stamp milling in 1912. L: D. Huntoon. Eng & Min J 95:107-8 Ja 11 '13

Winona stamp-mill. R. B. Seeber. II Met & Chem Eng 11:549-52 O '13

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Nealed copper standard. Am Inst E E Pro 32:2153-5, 2161-2 N '13

Cross-sections and symbols. diags Am Mach 38:775-8, 791 My 8 '13

Discussion on report of the committee on standard cross-sections and symbols. II Am Soc M E J 35:18-27 Ap '13

Standard involute gearing. Am Soc M E J 35:1405-20 S '13

Work in nonferrous metals at the Bureau of standards. G. K. Burgess. Eng N 70:805-6 O 23 '13

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Starch

Glucose and starch industry in the United States. Met & Chem Eng 11:698-9 D '13

Origin and significance of starch: its importance in plant and animal economy. E. D. Clark. Sci Am S 76:318-20 N 15 '13

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Decomposition of steam by heat. A: H. Gill. Power 37:113-4 Ja 28 '13

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Factor of evaporation. L. C. Roberts. Power 37:754 My 27 '13

Factor of evaporation. A. L. Westcott. Power 37:465 Ap 1 '13

Generation of steam by waste heat from furnaces. F. Peter. diag Am Inst Min E Bul 84:2775-2803 D '13

Heat, combustion and the generation of steam. C. A. McAllister. Int Marine Eng 18:18-20 Ja '13

Kilowatt hours per ton of coal at various evaporation. C. H. Sammons. Power 38: 194 Ag 6 '13

Properties of steam. R. C. H. Heck. Am Soc M E J 35:1617-30 N '13

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Economy of compression in steam engines. R. R. Fisher. II Power 38:159-61 Jl 29 '13

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First American locomobile. F. R. Low. II plans Power 37:696-701 My 20 '13

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Locomobiles on the uniflow system. A. Gradenwitz. II Power 38:714-5 N 18 '13

Lubricating engines in cold weather. J. C. Hawkins. Power 38:762 N 25 '13; Same. Sci Am S 76:375 D 13 '13

McAndrew's floating school. C. A. McAllister. Int Marine Eng 18:169-70, 212-4, 269-61, 310-2, 342-6, 393-6 Ap-S '13

New American-Ball paper-mill engine. II Ind Eng 13:222-4 My '13; Power 37:629-30 My 6 '13; Sci Am S 75:284-5 My 3 '13

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Operating results with an American locomobile. Elec W 62:1279-80 D 20 '13

Overhauling an electric station engine. J. F. Hobart. Elec W 61:154 Ja 18 '13

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Recent improvements in the reciprocating engine art. II Sci Am 109:36-7 Jl 12 '13

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Steam consumption of 4-valve engines. Power 37:546-7 Ap 15 '13

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Uniflow cylinder adapted to locomobiles. W. H. Miller. II Elec W 62:689-90 O 4 '13

Water hammer in steam engines. F. Gyseling. plan Am Soc M E J 35:1057-60 Je '13

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History

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Load curves from ideal Corliss engines. Power 37:296 Mr 4 '13

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Test on 19x21-in. Lentz simple engine. S. Rosenzweig. Power 38:795-6 D 2 '13

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Changing a heating plant from high to low pressure steam. C. E. Daniell. diag Heat & Ven 10:17-21 Je '13

Circuit system and the divided circuit system of steam heating. A. G. King. Dom Eng 64:122-4 Ag 2 '13

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Comments on figuring radiation for steam heating systems. Dom Eng 65:137-8 N 1 '13

Condensing plants for large commercial buildings. I. N. Evans. Power 37:88-9 Ja 21 '13

District heating by steam and hot water. L. B. Lent. Power 37:606-8 Ap 29 '13

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Heat and power in manufacturing processes. S. H. Bunnell. Iron Age 91:378 F 6 '13

Heat transmission with pipe coils and cast-iron heaters under fan blast conditions. L. C. Soule. plan Power 38:435-7 S 23 '13

Heating a concrete building by low pressure steam apparatus. Dom Eng 64:65 Jl '19 '13

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Heating and ventilating apartment house. plans Dom Eng 63:118-26 My 3 '13

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Heating and ventilating in Greenpoint hospital. H. L. Alt. plans Dom Eng 64:208-12 Ag 23 '13

Heating and ventilating the hotel McAlpin. J. Graham. II plans Dom Eng 63:5-13 Ap 5 '13

Heating and ventilation of office buildings. J. Graham. plans Dom Eng 63:276-9 Je 7 '13

High-pressure steam heating vs. hot-water by-product plant. I. N. Evans. Power 38:169-72 Jl 29 '13

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Service equipment of the Samaritan hospital, Troy, N. Y. C. F. Herington. plans Eng N 70:108-11 Jl 17 '13

Steam-loop and gravity-return system. J. C. Hawkins. plans Power 37:854-6 Je 17 '13

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Two-pipe system, for high and low pressure work. A. G. King. Dom Eng 64:37-9 Jl 12 '13

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Vacuum heating systems. Heat & Ven 10:39-40 Mr '13

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Steam meters

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Steam meters. J. A. Knegsche. plans Eng M 44:393-404, 567-77 D '12-Ja '13

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Woolen Industry and the tariff. J. H. Fletcher. Am Ind 18:26 Ja '13

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How can the colleges and the industries cooperate? I. L. Lee. Ry & Eng R 53:710-1 Jl 26 '13

Industrial need of technically trained men. Sci Am 108:252; 109:43, 116, 218, 292 Mr 15, Jl 12, Ag 9, S 12, O 11 '13

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Ice detection at sea: apparatus indicating temperature changes in sea water. II Eng M 46:281-3 N '13

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Practical applications of temperature measurement. R. S. Whipple. Sci Am S 76:366-7 D 6 '13

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Ocean terminal for the South: Texas City harbor developments. L. C. Talmage. II Sci Am S 75:116-7 F 22 '13

Port facilities for ships and cargoes. W. T. Donnelly. Int Marine Eng 18:107-9 Mr '13; Same cond. with discussion. Am Soc M E J 35:937-1009 Je '13

Report on New York terminals. Ry & Eng R 53:183-4 Mr 1 '13

What constitutes a steamship terminal. Int Marine Eng 18:21-3 Ja '13

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American soc. for testing materials, 16th annual meeting, Atlantic City, June, 1913. Eng N 70:37-42, 74-7 Jl 3-10 '13

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Power plants of textile mills. J: A. Stevens. plans Ind Eng 18:7-12 Ja '13

Power plants of textile mills: discussion of paper by J. A. Stevens. Am Soc M E J 35: 632-6 Ap '13

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Thermocouples and resistance coils for the determination of local temperatures in electrical machines. J. A. Capp and L. T. Robinson. Am Inst E E Pro 32:702-3 Mr '13

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Properties of saturated and superheated ammonia vapor. G. A. Goodenough and W. E. Mosher. Ill U Eng Exp Sta Bul 66: 1-94 '13

Properties of saturated and superheated ammonia. W. E. Mosher. Am Soc M E J 35: 25-68 Ja '13

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Relation of mechanical and physical properties of timber. Eng & Min J 95:659 Mr 29 '13

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- American railway tool foremen's assn. 5th annual convention. Ry Age 55:158-9, 178 Jl 25-Ag 1 '13
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Living wage and the living rate. T. Roosevelt. Ry & Eng R 53:693 Jl 19 '13

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Revised pension plan: funding provision upon actuarial calculations for each employee over and above present wage, due upon separation from service. A. deRoode. Eng M 45:728-30 Ag '13

Scientific management and the wage problem. C. B. Thompson. Ind Eng 13:430-3 O '13

Wage systems and their consequences. C. B. Thompson. Iron Age 91:1009 Ap 24 '13

Wages in the Amazon river valley. H. E. Collins. Power 37:521-3 Ap 15 '13

Wages paid in European metal-working industries. Ind Eng 13:240 Je '13

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Compressed air as a protection for battleships. R. G. Skerrett. Sci Am 108:266 Mr 22 '13

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Am. wood preservers' association: report of 9th annual convention, 1913. *Eng Rec* 67:sup 40-1 F 1 '13

American wood preservers' convention: abstracts of papers presented at the ninth annual meeting. *Ry Age* 54:164-76 Ja 24 '13

American wood preservers' convention, 1913: with abstracts of four papers by H. F. Weiss, J. H. Waterman, H. Von Schrenk, and H. G. Davis. *Elec Ry J* 41:150-5 Ja 25 '13

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Preservation of timber: abstracts of three papers by H. Von Schrenk, F. M. Bond, and H. F. Weiss at annual meeting of American wood preservers' assn., Jan. 1913. *Eng Rec* 67:108-10 Ja 25 '13

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Report of committee of American railway engineering assn. on wood preservation. *Fy*

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Installation of a power plant of 100 H. P. in factory having large quantities of wood waste available. R. E. Mathot. *Am Soc M E J* 35:332-4 F '13

Pulp and paper and other products from waste resinous woods. F. P. Velitch and J. L. Merrill. *U S Bur Chem Bul* 159:1-28 '13

Utilization of hardwood waste. *Iron Age* 91:1117 My 8 '13

Utilization of waste wood: raw materials. J. E. Teeple. *Met & Chem Eng* 11:75-6 F '13

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Operation of workmen's compensation laws. Iron Age 92:1248-51 N 27 '13

Washington workmen's compensation act and results of its first year of administration. L. R. W. Allison. Eng N 69:1005-7 My 15 '13

Workmen's compensation. Ry & Eng R 53:913 S 27 '13

Workmen's compensation act of the state of Washington. J. T. Rupli. Elec Ry J 42:138-9 Jl 26 '13

Workmen's compensation and employer's insurance in California. Eng & Min J 95:1274-6 Je 28 '13

Workmen's compensation laws. A. Belmont. Elec Ry J 41:214-5 F 1 '13

Workmen's compensation laws in the United States. C. E. Hodges. Ind Eng 13:61-4 F '13

Workmen's compensation legislation. E. H. Brown. Ry Age 55:1180-1 D 19 '13

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